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COMPUTING INTERNATIONAL

DECEMBER 1987

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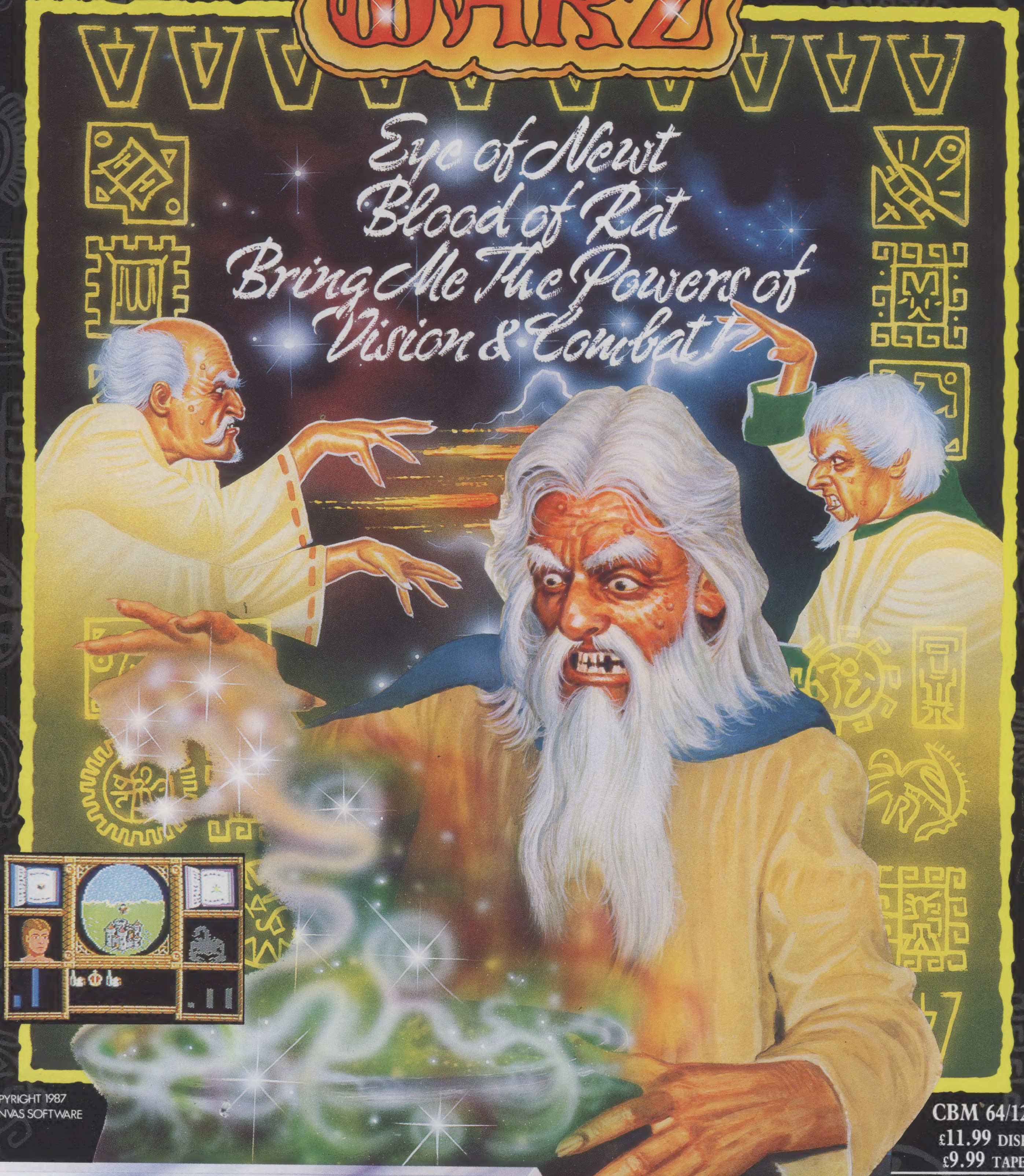

screen shot from CBM version

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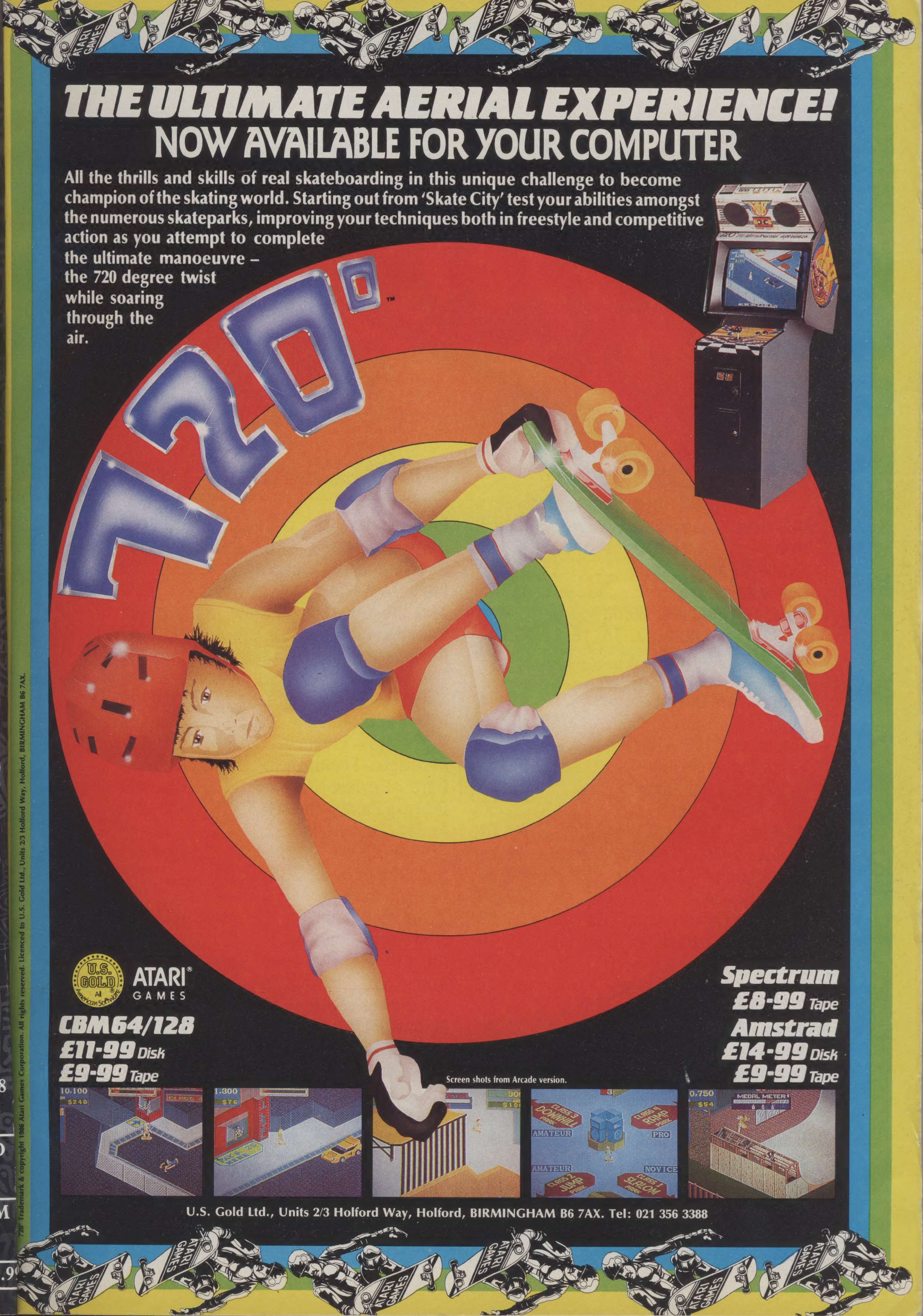
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188 PAGES – THE COMMODORE MAGAZINE THAT'S GOT EVERYTHING!

Inside

COMMODORE COMPUTING INTERNATIONAL DECEMBER 1987

CCI View 5
News 6, 7, 8, 13, 14
Readers Letters 15, 39, 40
Communications 16, 53
Personal Computer World
Show – Feature 18, 19, 20, 22, 24
Easy Music Series 29, 30, 32
CBM's Euroboss – Feature 38
Commodore Covers 44
Burst Mode Series 46, 47, 48
Fontmaster 128 – Review 54, 55
Value Calc – Review 55
Opinion – Zach Skinner 56
AMX Mouse offer 58
Hysteria – Review 60, 61
Opinion – Graeme Kidd 62
Compilations – Reviews 64, 65
EOS – Review 66
Druid II – Review 68
Power Plus – Review 70
Micro Rythm + – Review 70
Solomon's Key – Review 72
CCI Books Offer 76
Red Led – Review 80
Programs Request 81
Competition – Mega Apocaclypse 82
Summer Events – Review 84 85
Super Felix 86, 87
Indiana Jones – Review 88
Take Control – Feature 90, 91, 93, 95
Charts 96
EA Previews 98
Horgan's Hints 101
Bubble Bobble – Review 102
Impact – Review 104
Jack the Nipper II – Review 106
Nebulus – Review 107
Adventure 106, 109, 110, 112, 113
Terrorpods – Review 115
David Morse – Feature 118, 119
Firepower – Review 121
Roadwars – Preview 122
AmiExpo – Feature 126, 128, 129
Ogre – Review 138, 139
Express Paint – Review 136, 138
Amiga User Group 142
SDI – Review 144
Anco Previews 146
Looking Back –
Amiga Products 149, 150, 151
Zing Keys – Review 152
Amiga – New Releases 154
Amiga 500 Competition 157
CCI Subscriptions 158
Megastars '87 – Feature 162, 163
Timeworks Readers Offer 166
Programs 168, 173, 174, 175, 176
178, 180, 181, 182
Classified Advertisements 183
CCI Covers 184
Books Page 185
Advertisers' Directory 186

CCI View

Dear CCI,

I am writing regarding a letter published at the end of your letters section in the November issue. The point of the letter was to totally put down the Atari ST computer. You qualified the letter at the start by saying it is not the normal policy of CCI to publish letters about other machines. I wish you had not made an exception for this letter.

I am the very proud owner of an Amiga 500, as well as being a long standing user of a C64. I, like many others, am fiercely loyal to Commodore but at the same time I appreciate that there are other computers manufactured by companies, whose names do not start with a "C".

There is far too much animosity in computing, both regarding different machines and also between rival publications. Is it too much to ask that we all just get on with enjoying our own computers, chosen by each of us for our individual needs and preferences? It is pointless to try to impose our own choice on others. I personally consider the Atari a very good machine and would ideally like to own an ST as well as an Amiga. This view does not in any way affect the pleasure I get from my Amiga and C64, so I believe the world is big enough for both machines.

Keep up the good work on a magazine I look forward to each month. Forget the vendettas and just concentrate on the joys of owning a Commodore.

Yours Hopefully,
Trevor Cobbe, Leeds

P.S. Keep up the excellent competitions!!!!!

Dear Trevor,

Some people love sitting in front of a computer screen fighting off waves of threatening aliens or competing joystick to joystick with an opponent. Others relish taking part in bigger games in which their living, if not their lives, may be at stake. The rivalry between computer companies — as between computer magazines — is that kind of big game. Between Commodore and Atari — and others competing for the market "winning" can mean professional survival.

The people who work for these companies know each other and their competitive strategies well. Bob Gleadow and Paul Welch, who run Atari UK, worked for CBM. Jack Tramiel, Atari's owner, ran Commodore for years. It is natural that they should be driven to show they were right and CBM wrong and that present Commodore people should try to come out on top. You comment that "there is far too much animosity in computing". It isn't so much animosity but competitive spirit. When computer people meet at shows like PCW, they are on friendly terms. But big money — and people's careers — are at stake if the ST can replace the Amiga in wholesalers, retailers or on the user's table. So the relationships may be friendly but the rivalry is in deadly earnest.

While you may believe that the world is big enough for both machines — and in reality that is probably true — no-one lets themselves believe that in the computer companies for fear that effort will lessen and the "game", and maybe their jobs too, will be lost. Business, someone said, is the best game in town. But there are winners and also losers...

As for rival computer magazines, there is a similar competitive feeling. Not only do we compete for the Commodore owning audience and the advertisers selling to them, that fierce loyalty for CBM you mention, spreads to our own publications too. We resent magazines that copy our original ideas. We despise publications that seem to debase the Commodore scene. But we admit that we eagerly examine these rivals to see if they have outdistanced or out-thought us in the race to provide you with the coverage of what you will find interesting.

When we meet at press conferences and so on, we also compare notes, in a friendly way, on new products and trends in the industry. Once again not so much animosity as competition. So when you recommend "forgetting the vendettas", you are right — but only in part. Whether it is selling computers or magazines, sometimes to overcome obstacles and beat the opposition often it can only be done by what Werner von Braun described as the key ingredient in the U.S. success in putting a man on the moon — **Will**. That will often comes only from a positive commitment to a goal or a cause, which in human terms may mean setting a target or challenging an opponent. To do that we have to convince ourselves and others that our choice is right and someone else's option is wrong. The competitive spirit may not be entirely admirable but it can prove extremely effective...

Interestingly, your P.S. says "Keep up the excellent competitions". Competing even in CCI means beating others. And I'm sure you agree that while competing may be fun, winning is the best fun of all!

Yours sincerely,
Antony H. Jacobson
Managing Editor and Publisher

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THE PERIOD FOR WHICH THIS OFFER WAS VALID HAS NOW ENDED.

DEC Hackers Attack

A major breach of the Dec VMS operating system by West German hackers has called into question the security of operating systems of all the major computer manufacturers.

A team of hackers penetrated a top security computer network linking the US space agency Nasa with research centres in Europe and Asia.

Six hackers aged between 18 and 25 broke into Dec's 'state of the art' 4.4 and 4.5 versions of VMS by finding an error in the operating system software which let them enter the networks of 135 top computer centres.

They planted 'Trojan Horses', which are command signals that give free access to files and the ability to change programs or files.

The VMS operating system had been given top level security clearance by the US National Computer Security Centre.

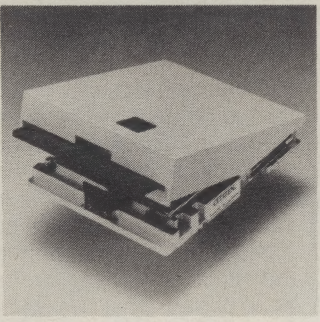
Experts fear the system's complexity creates weaknesses that can be exposed.

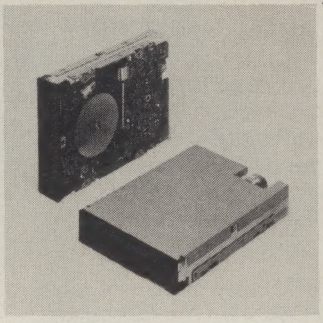
They are also concerned that some users of the system ignored 'patches' Dec sent to plug weaknesses in the operating systems some months ago.

Amiga-64 Printlink

Trilogic have come up with something which should please all those C64 and 128 owners who have just upgraded to an Amiga. Instead of pensioning off your CBM serial printer — MPS801 etc our Printlink system takes the output from the Amiga's printer port, channels it into your redundant 64 or 128 via the USER port and from there to the serial printer.

Cartridge software means that no TV or monitor is needed — just connect the lead, insert the cartridge and switch on. Function keys control the various features of the Printlink system. The 64s memory makes a good printer buffer too. Price: £39.95.





Citizen Launch New DDs

Citizen Europe Ltd, have announced the launch of two new ranges of competitively priced 3½", 1" high floppy disk drives.

It is forecast that the world market for 3½" floppy disk drives will exceed 21 million units by 1990, (9 million in 1987). Half of today's total production is in the 3½" format, the 5¼" market share is declining rapidly, so much so that by 1990 3½" drives will account for over 80% of world production.

Already Citizen account for 4% of the world market for floppy disk drives and enjoy 9.5% of the 3½" market — third behind Sony and Alps.

The new Citizen ranges, called the OS series and the OT series incorporate high performance, top reliability and large memory capacity with flexibility and ease of use.

Within the OS series (front loading) and the OT (top loading) Citizen Europe offer eight models.

Memory capacity ranges from 2MB, 1.6MB to 1MB with top models (OSDA) switchable between 2MB and 1MB unformatted and (OSDB) switchable between 1.6MB and 1MB unformatted.

All Citizen Europe's drives have 135 TPI and access times range from 3 to 6 msecs with settling times standard at 15msecs.

The drives operate on a single power supply of 4.75-5.25V and also benefit from low power consumption (read/write 1.8W, standby 25W) — an important factor for portable computers users.

Bugbyte's Defcom!

Although President Reagan may be having difficulty in persuading his allies to assist in the development of his 'Star Wars' defence, Bug Byte have managed to program the details into their computer and the result is Defcom.

Defcom, Bugbyte says, will put your shooting skills to the test as you take command of an Eagle Class E751 fighter plane fitted with a single beam laser. Your mission is to re-gain Earth's Satellite system which is currently occupied by unknown alien forces. As you blast these aliens to smitherine — gain 1000 points and this weapon will be exchanged for a Double Wind Beam, Ultra High Power, Special Purpose Laser, which you can use as and when required.

You have them on the run — or do you? You've used the Special Purpose Laser to great effect but too much, your energy is depleted, your defence shields are failing. All is not lost as you have gained a further 1000 points and now have one extra anti-satellite homing missile and one charge of, debris shattering, grape shot, use it sensibly or your mission is doomed to failure!

Every additional 1000 points, up to 5000, gained as you progress through the game will introduce a new weapon to your arsenal. The alien forces have a whole range of craft with differing weapons, speed and flight patterns — so this is not going to be simple.

Defcom is on Commodore 64, price £2.99.

Create an Automated System

Superbase Professional's Database Management Language (DML) has been devised to make it easy for even the non-programmer to create powerful applications while at the same time offering an astounding 200 commands.

Simple routines can be built up to become complex programs until a fully automated database system is created.

At the highest level, replacement pull-down menus can be produced and many other customising features such as personalised pop-up selection panels are available.

To make programming even more simple, a full screen editor has been included. There is also an option to protect work from prying eyes by encrypting programs.

It comes from a company greatly experienced in the business field, with more than half a million users of its productivity software worldwide.

For further information please contact Ian Byfield on 061-456 8383.

Mask II

The second of Gremlin's exclusive 'Mask' products featuring every adolescent's hero — Matt Trakker, who appears on UK TV every Sunday morning.

Mask II has been accurately portrayed and brings new depths to the adventures of the Mask team. This game includes four separate adventures within the one game.

The action is divided into two main challenges. Firstly the alert section and the selection of your team and vehicles followed by completion of the four main missions, during which the player must exercise expertise in choosing when to transform etc.

Mask II features exhaustive locations and vehicles, and offers a challenge to gamers of all inclinations.

Commodore 64/128K cass £9.99 and disk £14.99.

Simpler Data Protection Registration

To make registration simpler for small businesses, the UK Data Protection Registrar is issuing a new, shorter registration form.

The form identifies the four most common computer applications — personnel and payroll; marketing (including direct mail); purchase ledger; and customer and sales records. There is also provision for a Data User to add other activities not covered by these four, if necessary.

Direct mail will be used to distribute the forms to more than 200,000 small businesses.

Gremlin's Deflektor

No heroes. No foes. Only pure skill and technology, says Gremlin, as you guide your lazer beams through a sea of danger, a pyramid of obstacles reflect it from mirrors, bounce it off walls and deflect it through lenses.

The players must forever calculate the angles, carefully judging the beam's path towards the home receiver. After that, another fifty nine levels of frustration and mind boggling intrigue. Gremlin says it's addictive, compulsive and only for those who can withstand defeat.

Commodore 64/128K cass £9.99, disk £14.99.

Electronic ads

A new electronic medium is being introduced to 1,000 post offices around the country.

Post Office Nu-Media Adcasters — 4′ × 15″ screens featuring LED displays — are being installed now, and all 1,000 should be running by the end of the year.

They can each be individually addressed by a central computer, allowing daily changes.

A 20-second ad running nationally for four weeks (the same ad repeats every 15 minutes) will cost about £13,000.

PC Sales to Slow

Demand for business personal computers is set to slow as the market becomes more mature, according to a report from Romtec, the market research consultancy.

The business personal computer market has recently experienced explosive growth. Romtec's report says that the average annual increase was 38 per cent by volume and 33 per cent by value between 1983 and 1986.

However, Romtec is now forecasting average annual growth rates of 8 per cent by value and 17 per cent by volume between 1986 and 1991.

Average prices are also set to fall by 30 per cent between 1986 and 1991. This compares with a 7 per cent fall between 1984 and 1986, when increased sales of more powerful machines compensated for price reductions by the suppliers.

In 1986, 316,000 business personal computers worth £873m were sold in the UK.

UK Business Microcomputers, Romtec, Hattori House, Vanwall Road, Maidenhead, Berks.

Aussie at Compec

Australian designed and developed computer hardware and software forms an impressive technological array of products at this year's Compec '87 exhibition in London.

A total of 10 Australian companies with from business software packages and operating systems, text and image retrieval systems, through to high speed laser printers.

The laser printers are being manufactured and marketed by the new joint venture company **Gestetner.** The range includes the LS800 which operates at eight pages/min and offers users multiple fonts and graphics and memory upgrade paths. Also available from Impact Systems is the L2000, a heavy duty page printer which operates at 20 pages/min. Emulations include; Diablo 630 and 630ECS, Qume Sprint 5/9, NEC 3515/8815, Epson and IBM.

Australia's **Micro** show its system for the control of food and beverage sales. This company has also developed an Inventory Debtors system and Retail Point of Sale packages. The packages run on IBM compatible systems.

Also available for IBM compatibles is Easyquote, a vehicle body repair quotation system developed by **Computer Brokers PTY.** With this package the preparation of detailed quotes, management reports and the control of invoices and debtors list are considerably enhanced.

The technical capabilities of Orion from **Interactive Engineering PTY** are designed to make maximum use of knowledge bases. This software handles and structures stored knowledge via logical calculation and algebraic and logical manipulation.

Manipulation of a different kind is possible with MULTIDOS from **Microframe Software.** This operating system will convert a microcomputer, through the addition of screens, terminals and keyboards, into a multi-user/multi-tasking system. The completed system is able to offer several users a share in the original microcomputer's resources, including memory, disk drives, printers and modems.

Greater productivity is also the philosophy behind the development of three software packages from **ODC PTY.** Odyssey is a productivity planning tool which allows personnel to plan their daily activities via a micro.

Also from ODC is Practice, a program for medical finance and billing control. It also serves as a database of patient history files.

Computer Services of Western Australia have a software package for the real estate and finance industries, service stations and point of sale.

There is a software package available from **Power Software PTY** — an accounting applications generator which can be modified via a configuration utility to suit any business need.

The package runs on IBM PCs or compatibles and a multi-user version is available when installed with Novell, 3COM plus and other DOS 3:1 networks.

There is a text and image retrieval software is the speciality of **QCOM PTY.** The Corporate Retriever package from this company now has 100 users in the UK. It will search out numbers or word phrases or a combination of these. Just Imagine is the other package from QCOM PTY. This uses TCR to retrieve images which are stored on CD-ROM or optical disk.

Final exhibit from the Australian high technology contingent is **Stowe Computing** Australia. Total corporate book library management and property management systems are the speciality software systems marketed by this company.

For further information please contact: Nick Johnstone Campaign Communications. Tel: 01-658 0131.

Messaging's Bright Future

The use of electronic messaging will double by 1993, according to a report from Logica Telematica.

The report says the number of connections will increase to three million over the next six years. But the demand for new electronic messaging services is for facsimile and X.400 facilities rather than telex and teletex terminals. The X.400 standard allows users of different mailing services to communicate with each other.

Telex presently accounts for over 70% of the number of connections, but this is expected to fall to less than 25% by 1993.

Mini Office for USA

Mini-Office is to be sold in the USA following an agreement made by Database Software with US company ShareData.

The agreement gives the UK company distribution to some 22,000 outlets in the US. It will launch its own packages Mini Office and Desk Top Publisher through ShareData, and also hopes to licence other UK and European product for US marketing and distribution.

Database's Michael Meakin said that there will also be a US Database company based in Phoenix, Arizona.

"Database Sofware Inc will be moving as much UK and European softare in the US as possible, and we'll be looking for really good product to market over there. Our products will be part and parcel of the deal. For example we'll be doing a PC version of Mini Office — there's nothing around that is like it in the US."

Trilogic Grows

Trilogic have moved to bigger premises — their new address is below — and are creating a flow of new products.

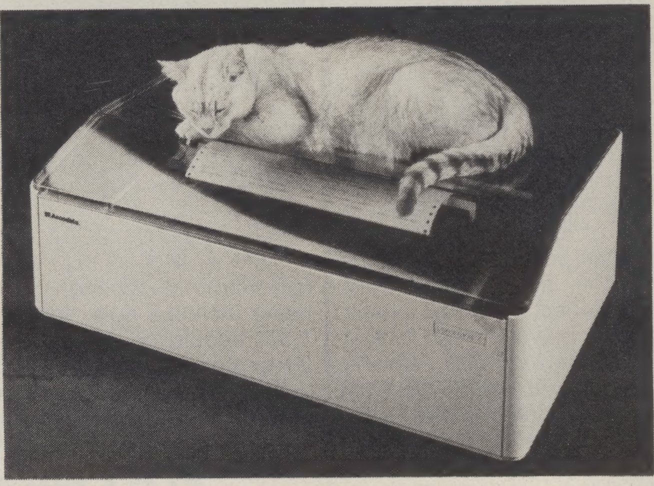
The 3.1 Expert
Trilogic have announced their new 3.1 version of the popular cartridge — The Expert.

Version 3.1 incorporates some new features: Icon driven main operating system; improved machine-code monitor; help key for instant on-screen help; dual screen facility — instantly switch between two screens; 2-pass assembler; label generating disassembler; Expert RAM pack pack compatible.

All the previous V2.10 functions such as hires screen grabber, sprite extractor and editor are incorporated.

Upgrading to the V3.1 (disk or tape) costs £3.50.

Trilogic, Unit 1, 253 New Works Road, Low Moor, Bradford BD12 0QP. Tel: 0274-691115.



9 out of 10 pussy cats prefer . . . Accodata.

Accodata's Printer Mufflers

Accodata has launched two new low-cost lightweight acoustic hoods for most 80 and 132 column back and bottom feed printers which, it is claimed, reduce printer noise levels by up to 80%.

Called 'Printer Muffler', the new hoods are of grey high impact styrene lined with acoustic material and have clear lids/dust covers enabling users to keep a watchful eye on paper flow and ensuring printer output is seen and not heard. Optional stands for both models lift both printer and muffler off the desk top to permit paper storage underneath, prevent damage to printout stocks and give a better paper path.

The 80 column 'Muffler' is priced at £69 with the 132 column 'Muffler' at £75. The optional stands are £21 and £24 respectively. All prices are exclusive of VAT.

Contact: Accodata Tel: 0732 885555.

Trilogic's RAM Pack

These ram packs connect to the USER port, leaving the cartridge port free for existing cartridges. Either 32K or 64K ram versions are available and both types incorporate a Lithium back-up battery.

The ram packs were designed for use with the Expert cartridge and the new V3.1 software makes extensive use of them. For example, several functions can be 'stored' in the ram packs until needed so avoiding the need to reprogram from disk. For tape users, this means that the Expert is almost as fast and easy to use as from disk.

Experienced programmers, many of whom already use the Expert for its powerful and versatile machine code monitor, will no doubt find the 64k ram pack a great asset. In fact, an opportunity now exists for programmers to develop commercial software which could use the added memory to great effect.

Although intended for use with the Expert, they can be used as general purpose memory packs or as small 'ram disks'. Software is currently under development for this. For example, a 64 owner could have two or more of them; storing in them their favourite utilities or games, and either simply inserting one at a time, or switching in the appropriate one via a user port expander.

Trilogic will be running a competition (with 'fabulous' prizes) for the best, most imaginative piece of software to use both Expert and ram pack hand in hand.

The Expert ram pack 32k £39.95. The Expert ram pack 64k £49.95. Prices incl P&P and VAT.

Contact: Trilogic, Unit 1, 253 New Works Road, Low Moor, Bradford BD12 0QP. Tel: 0274-691115.

Ocean goes Madballs

Ocean Software has acquired the 'Madballs' licensing rights from TCFC (Those Characters from Cleveland Inc). These weird and wacky toy characters have now inspired a computer game. The game will bounce into stores across Great Britain and Europe in December for the 64.

'Madballs' is an arcade-action style game featuring the megalomanic 'Dust Brain' (a dried-up mummy head who's not too tightly wrapped). He is a member of the notorious Madballs political party, the current rulers of the planet Orb.

Convinced that his policies are right, Dustbrain sets out on a bureaucrat-bashing exercise to eliminate any opposition. The player adopts the role of Dustbrain, and the objective is to convince the rest of the Madballs to join your team or cabinet. Unfortunately some of the other party members have the same idea. Characters such as Screamin' Meemie and Slobulus indulge in various subversive activities in an effort to thwart the masterplan.

But the way to any Madball's heart is through its stomach — and by controlling the supply of cabbage and fish heads — victory is just around the corner!

Trilogic Products

Trilogic make several different leads to connect a wide range TVs to the Amiga. The 21 pin Euro or Scart socket is the most common type of RGB input and is found on Sony, Philips, Toshiba, Salora, Fidelity, and Hitachi etc. Its leads enable most TVs to display all 4096 colours and the quality is surprisingly good — certainly up to medium res monitor standard in most cases.

The audio lead is also included — stereo in the case of the AL 1 lead. The best results so far have been on the Sony KV1440 and 1442 14" models.

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— Commodore User

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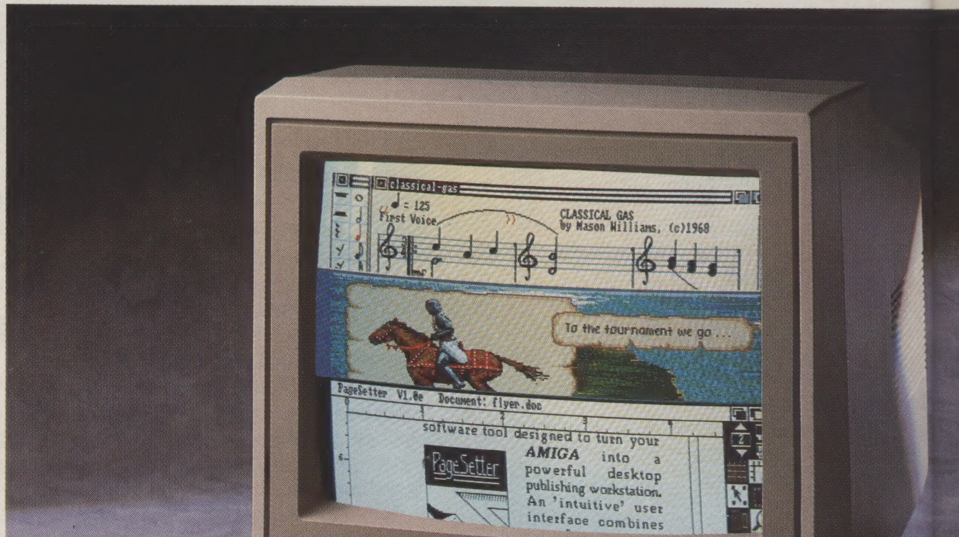
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Amiga 500 is here.

With a mind-blowing array of features and capabilities.

And a £499‡ price ticket (ex VAT), hundreds of pounds less than anyone could have predicted.

"...a miracle of compression..." writes *Popular Computing Weekly** "...it all adds up to a formidable system which is clearly better than anything else at the price."

This elegant little machine takes family computing into new dimensions of creativity, excitement and productivity.

It outruns and outguns office PCs as a business multi-tasker, performing a deskful of different jobs simultaneously, at over 7 million steps per second in realtime.

So other home computers may not be the only machines it consigns to the toy cupboard.

AMAZING SCIENCE FACT!

Amiga is used by Disney, Universal and other Hollywood studios for its dazzling 3D graphics manipulation and animation powers.

A sophisticated high-speed graphics processor called a blitter chip transforms images in realtime.

You can paint the screen with more than 4,000 colours. Create and modify designs and effects as you like, with pin-sharp resolution.

You command an almost limitless workshopful of stunning professional graphics capabilities.

With an optional Genlock interface, you can capture images off videotape. Manipulate and mix them with graphics. Then re-transfer them to videotape!

This means you can produce spectacular special effects like those created by Amiga computers for Channel 4's *Chart Show* and the American TV science fiction series *Amazing Stories.*

YOU AIN'T HEARD NOTHING YET!

Concealed within the sleek Amiga shape, there is also a pro-quality sound synthesiser and four-track stereo sound system.

Driven by another powerful and unique custom chip, it can synthesise musical instruments and

‡Includes DeluxePaint from Electronic Arts worth £79 + VAT! (Excludes monitor or TV modulator.)

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MIGA 500.
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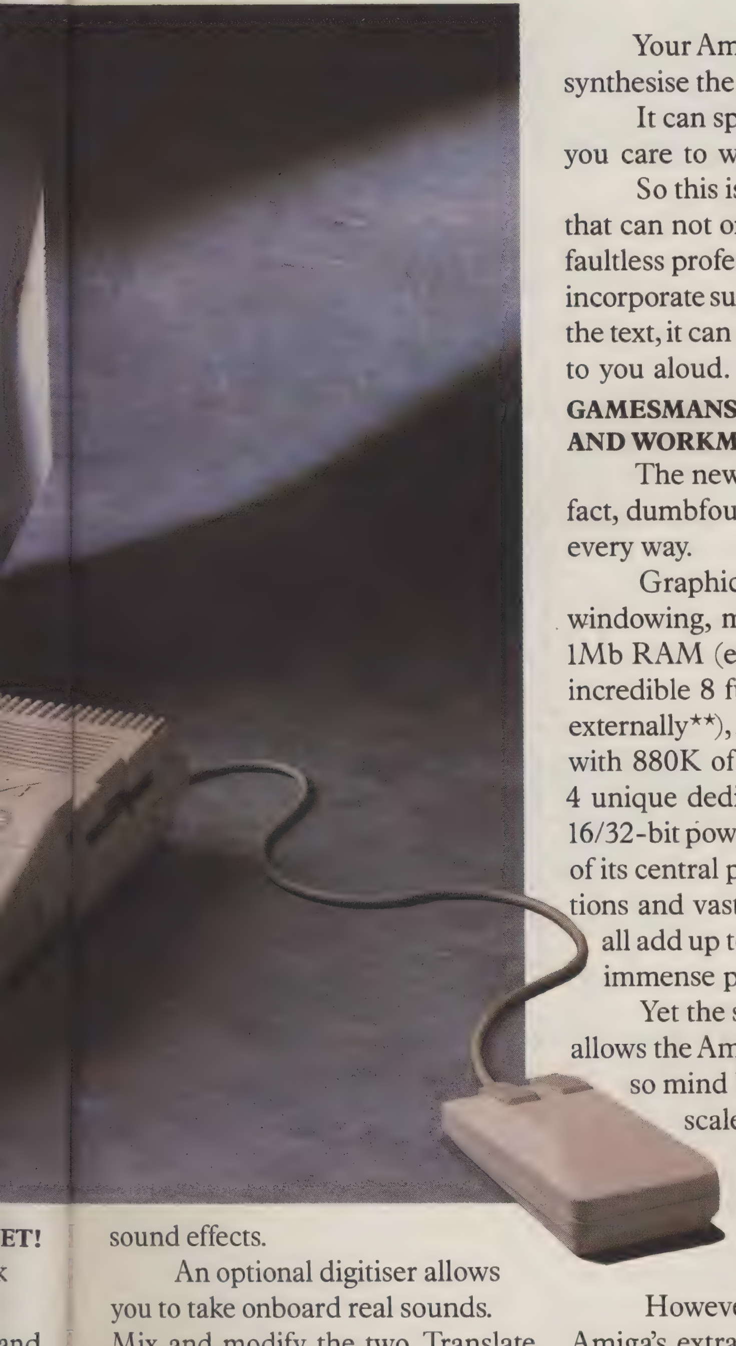

ET!
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sound effects.

An optional digitiser allows you to take onboard real sounds. Mix and modify the two. Translate your compositions from keyboard to sheet music. Play them back through the monitor's speaker or your hi-fi.

Your Amiga can also synthesise the human voice.

It can speak back anything you care to write on the keyboard.

So this is one computer that can not only word process with faultless professionalism, and incorporate superlative graphics into the text, it can also read the text back to you aloud.

GAMESMANSHIP AND WORKMANSHIP!

The new Amiga 500, in fact, dumbfounds its competitors in every way.

Graphics, stereo sound, multi windowing, multi screens, 512K to 1Mb RAM (expandable by an incredible 8 further megabytes externally**), 3½″ internal disk drive with 880K of mass memory, 4 unique dedicated chips plus the 16/32-bit power and 7.14MHz speed of its central processor, communications and vast expansion potential all add up to a computer of immense professional capability.

Yet the same technology allows the Amiga 500 to play games so mind bending that only full-scale arcade machines have been able to play them until now.

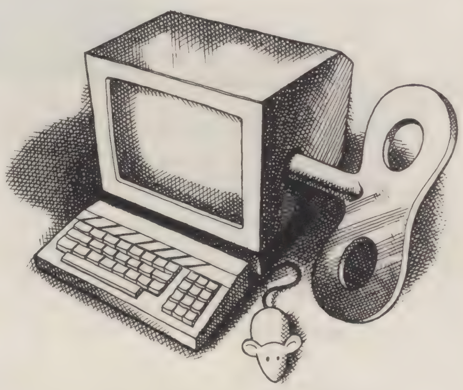
AND AMIGA MEANS 'FRIEND'!

However many of the Amiga's extraordinary talents you find yourself using, they will all be beautifully simple and natural.

You will be totally at home in the friendly and effortless Amiga environment, where everything happens by windows, icons, mouse and pulldown menus.

And the Amiga 500 simplifies life in another way too.

There is now no comparable home computer. At any price.



Try the astonishing new Amiga 500 at your nearest Commodore Amiga dealer.

And discover why *Personal Computer World*†, having tested the graphics performance of Amiga's latest and most powerful rival, concluded "...Amiga still reigns supreme..."

Commodore

**Popular Computing Weekly*, 22-28 May 1987. †*Personal Computer World*, February 1987. ***Subject to availability.*

UKLG.

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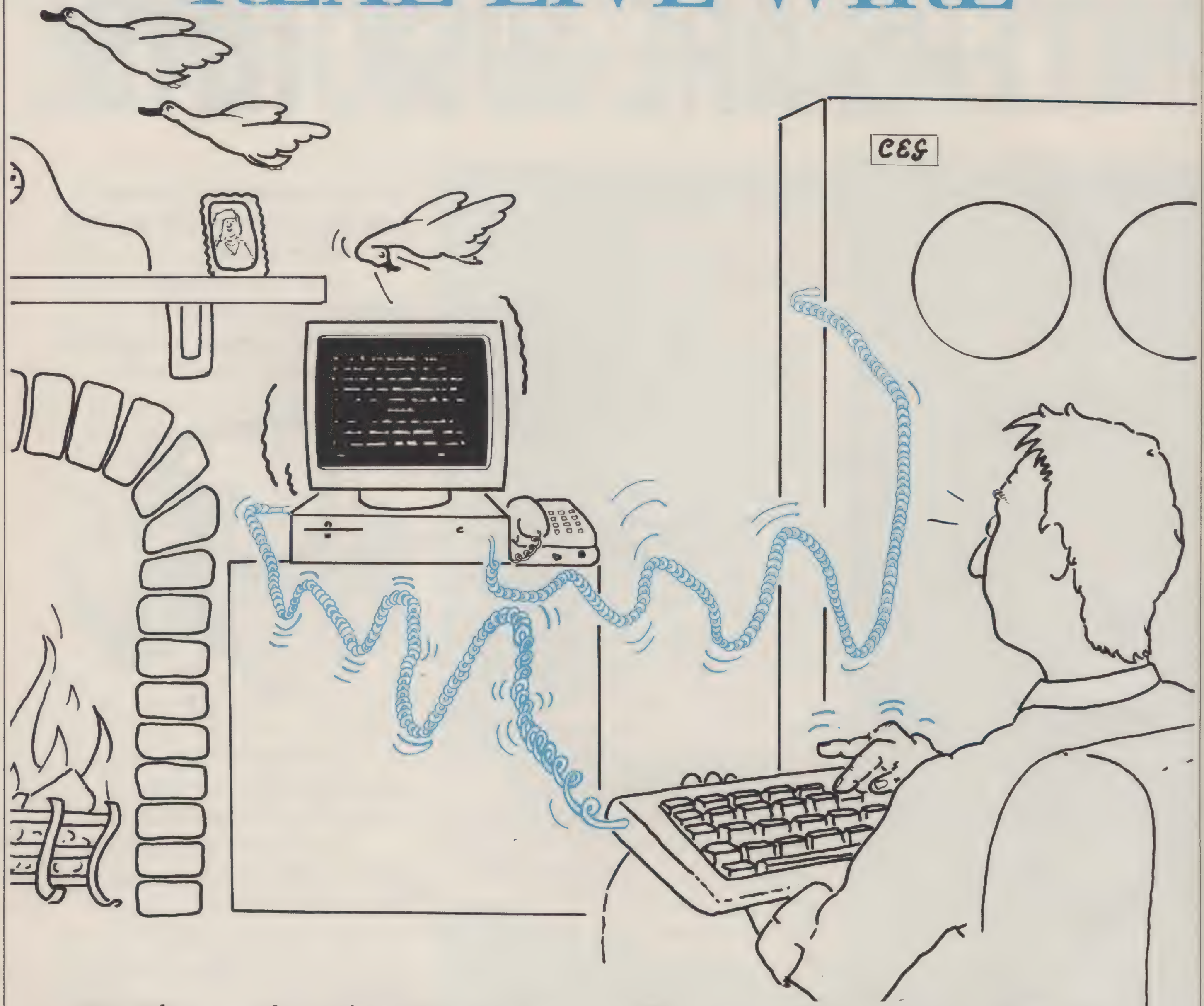

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Star Simulation

'Evening Star' depicts the tribulations encountered along the hazardous journey on the famous Somerset & Dorset Line from Bournemouth to Bath.

An authentic steam train simulation, 'Evening Star' has all the realism and charm of those halycon days. 92220 Evening Star was the last 9F British Rail locomotive to haul the "Pine Express" over the treacherous terrain of the S & D.

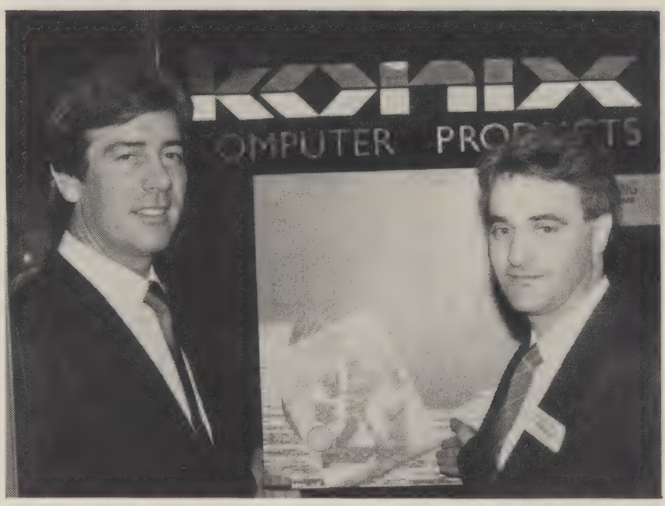
There are a number of different runs to undertake and enjoy. These range from the easiest training run to the most difficult problem run. Use skill and judgement to set the various controls and guide the heavy locomotive on a safe journey to its destination in Bath.

'Evening Star' is written by Mike Male and designed by railway enthusiast, Bob Hillyer. The game will be available for the Commodore in September 1987.

3 Millionth WordStar

MicroPro International will be selling its 3 millionth copy of WordStar during the next few weeks and the Company is planning special promotions, all over the world, to celebrate this milestone in its history.

Commenting on the 3 millionth promotion, John Speller UK MD said, "WordStar is the strongest brand in the history of word processing, and has the most loyal base of users of any product. A recently completed independent study of more than 700 word processing users showed WordStar with the most positive image of any product in the category, by a significant margin. The Company sold 100,000 copies of WordStar Professional Release 4 in the first 100 days and we are well on our way towards selling 200,000 copies. We want to thank all those people who, over the years, have helped us to reach 3 million sales."



Konix sticks to the Thing

Konix are releasing an Auto-fire version of their Speed King joystick and have reduced their original joystick by £1 to £11.99 which includes the acclaimed game 'Thing Bounces Back' from Gremlin Graphics. Both joysticks are now compatible with the Commodore 64/128. The Auto-fire Speed King is available for £12.99.

'Thing Bounces Back' was released as recently as last May and at the time received excellent reviews. A multi-screen platform game, it is the sequal to 'Thing on a Spring' and involves a toy on a spring which has to bounce around the factory, avoiding evil toys, seeking to stop the manufacture of monstrous toys.

Commenting Wyn Holloway, Managing Director of Konix, said "We have been truly delighted with the sales of the Speed King. We believe it has proved to be so popular because of its ergonomic design, fast response micro switch control and because it is so robust. Now that 'Thing Bounces Back' which has a retail value itself of £9.99 is available with the joystick, we believe it will easily outsell all other joysticks world-wide".

Bone Cruncher — Superior's soap opera

First there was Boulderdash, then there was superior Repton and now Bone Cruncher is ready to A-maze you!

The latest devious game from Superior turns life in a bath house into a soap opera of Wagnerian complexity, with Superior say 'brilliant music and stunning graphics.'

Mork, an enterprising little dragon, has opened a bath house for the monsters who lurk in the stagnant waters of the deepest parts of the sea. Business is booming but the smell of the monsters has lured malevolent marbles into the bath house and Mork can hardly move for them. Spiders and other nasty creatures have also taken up residence and their bones can be used to produce soap for the bathing monsters. Mork daren't disturb the bathers unless he is delivering another tablet of soap, but when he does the small wafting through the open door attracts all the neighbourhood marbles, often unblocking an otherwise impassable passage.

With a modicum of gumption, it all seems to work very nicely for Mork but for one slight problem: the creatures whose bones produce the soap wander about the bath house with a craving for tender baby dragon meat. For this reason Mork prefers to go everywhere with Golem, his minder and sole ally.

CRL Hunted by Man

CRL is launching I. Alien for the 64. You are the Alien. Once you were the hunter, now you are the hunted. The tables have been turned following the unexpected arrival of a Starship from Earth. The humans on board sai they had come in peace — in search of precious minerals — though you soon discover the real purpose of their journey. A violent and catastrophic nuclear war has wiped out Earth's entire animal population. The humans have no livestock and have been forced to search space for new laboratory specimens to cultivate a new food source.

You are intended to become one of the guinea pigs.

New 64/128 3½ Disk Drives

Financial Systems Software, who recently launched a new 128 users club, are introducing the new 3½ inch disk drive for the Commodore 128 and 64.

The Commodore manufactured 1581 disk drive uses a double sided, 800k disk. The Disk Operating System (DOS), allows sub-directories for easy data control, this uses up to 10k of the available disk space. The 1581 drive has been designed to use the extra serial pin on the 128 which allows a faster data transfer rate. The disk drive will work on a Commodore 64 but will be slightly slower. The drive is reviewed in this issue of CCI.

An inhouse disk transfer service will transfer software from a 5¼ inch disk to the 3½ inch disk format. A nominal fee will be charged for the disk and postage.

The 1581 disk drive will be sold with a UK power transformer and bundled with a collection of disk utilities. The price which is not yet fixed, will be around £175.00

Contact Financial Systems Software, Brampton, Croome Road, Defford, Worcestershire WR8 9AR.

E.A.'s Instant Music

Electronic Arts has announced the release of 'Instant Music' for the Commodore 64/128 and the Amiga. Instant Music lets anyone play or compose great-sounding music in seconds, and its powerful features make it suitable for music education, professional composition, and anyone interested in music. Additionally, the Company announced two accompanying library disks from the DeluxeSeries; 'It's Only Rock 'N Roll' and 'Hot & Cool Jazz'.

Instant Music uses a non-standard form of music notation which is easy to read and a remarkable user interface to make creating music as easy as possible. The key to the program, however, is the artificial intelligence that helps the user make mistake-free music. Instant Music will never let the user play out of tune or in the wrong rhythm.

Instant Music will play four instruments or the user can take control of one instrument and "mousejam" along with the other three. "Mousejamming" is holding down the mouse button and moving the mouse up and down. The lead instrument that the user has chosen will play notes in the right rhythm and key, guided by Instant Music's artificial intelligence. This can be set to five different levels of assistance, from no assistance to guiding the user to the correct melody.

Composing requires the user to turn on the QuickDraw icon, describe a line on the screen with the mouse, and in seconds Instant Music will fill in the proper notes along that line. For greater accuracy, the user can zoom in to see fewer measures at a time, or even just one measure. Serious musicians will find Instant Music useful as a "musical sketchpad" quickly to jot down musical ideas.

Instant Music includes over a dozen digitized instruments and 40 songs of all types, including classical, folk, jazz, and rock tunes. Two 'Deluxe Library' disks will also be available for use with Instant Music. The first 'It's Only Rock 'N' Roll', contains over 15 new digitized instruments and 40 songs that cover the history of rock 'n' roll.

'Hot & Cool Jazz' has new instruments and dozens of songs that cover the history of jazz from 190 to the present.

Amiga £24.95, Commodore (d) £14.95, Commodore (c) £9.95, Amiga It's Only Rock 'N' Roll £9.95, Amig Hot & Cool Jazz £9.95.

Master of the Universe — The Feature Movie

'He-Man' the most powerful man in the universe, has been entrusted with the power of Castle Grayskull and all of the wisdom of the planet Eternia, to defend the universe against evil lead by the villain 'Skeletor'.

Gremlin in turn have been entrusted to produce a faithful reproduction of this forthcoming feature film for home computers.

Gremlin invite you to join He-Man in this classic good versus bad arcade adventure. He-Man's Sword of Power is fused with the combined wisdom and strength of all the ancient Eternian elders. This will aid you in your fight against such villains as Evil Lynne, the sorceress and Beast Man and the savage first lieutenant of Skeletor.

Superior's Bone Cruncher is a series of mind-bending mazes, created by West German programmer, Andreas Kemnitz for the Commodore '64. Price £9.95 cassette, £11.95 disk. £14.95 Amiga.

Gremlin Traps Mouse

Gremlin are excited about another exclusive licensing deal they have done — 'Basil the Great Mouse Detective' Walt Disney's latest lovable characters has been captured to star in a brand new adventure.

The player must rescue his good friend Dr Dawson from the evil clutches of the dastardly Ratigan. You follow the clues which are strewn all over the buildings in Baker Street in order to achieve your objective.

Each of the three levels has five clues which will enable you to find the entrance to the next level. But you must distinguish between the real clues and the red herrings.

Complete with clues, the criminal fraternity of the rodent underworld and set in some of London's most famous locations, Basil the Great Mouse Detective may not be as elementary as it seems!

Winter Olympiad '88

Tynesoft say you can practice for the forthcoming XV Winter Olympics from the comfort of your armchair. They are releasing Winter Olympiad '88.

While the preparations for the Games take place in Calgary, you could already be flashing between the slalom gates, ski jumping through the rarified air or hanging on to your bob-sled in pursuit of that elusive World Record on your own computer.

Six of the most challenging Olympic events have been selected to challenge your abilities to the full. Ski jumping, the Slalom, Downhill racing, the bob-sled, the gruelling Biathlon, and Speed skating Tynesoft tell us are guaranteed to take your breath away.

High quality graphics and sound are not the only things on offer, the gameplay is designed to be strategically balanced between speed and control which will increase the challenge as your skills improve.

Tynesoft claim Winter Olympiad '88 is probably the greatest challenge ever to face a computer sportsman.

C16/Plus 4 £7.95 (c), CBM64 £9.95 (c), Amiga £19.95 (d).

Tour de Force

At last someone has come up with a sports simulation that captures the thrills of International Grand Prix cycling — and who else but Gremlin?

The action takes place in five stages. You have to master the different techniques required to sustain your journey through five different countries — each with a terrain and backdrop to match the location.

Your main objective in 'Tour de Force' (great title, don't you think?) is to win each leg and then score the greatest number of points over the five legs. If you don't defeat the champ you can't proceed into the next country.

Things might seem to be going okay. As the action begins to heat up, things begin to turn nasty. That American Wild Bill Stacey and Russia's Ivan Ivanoff won't be pleased to see you out in front. If you don't get kicked off first, the assortment of potholes, broken bottles and bales of hay that litter the course won't speed you on your way either.

From the crack of the starter's pistol to the presentation of that coveted yellow jersey, Gremlin says it's all-out warfare. It all adds up to the world's toughest sporting event on computer written with tongue in cheek. A Tour de Force indeed!

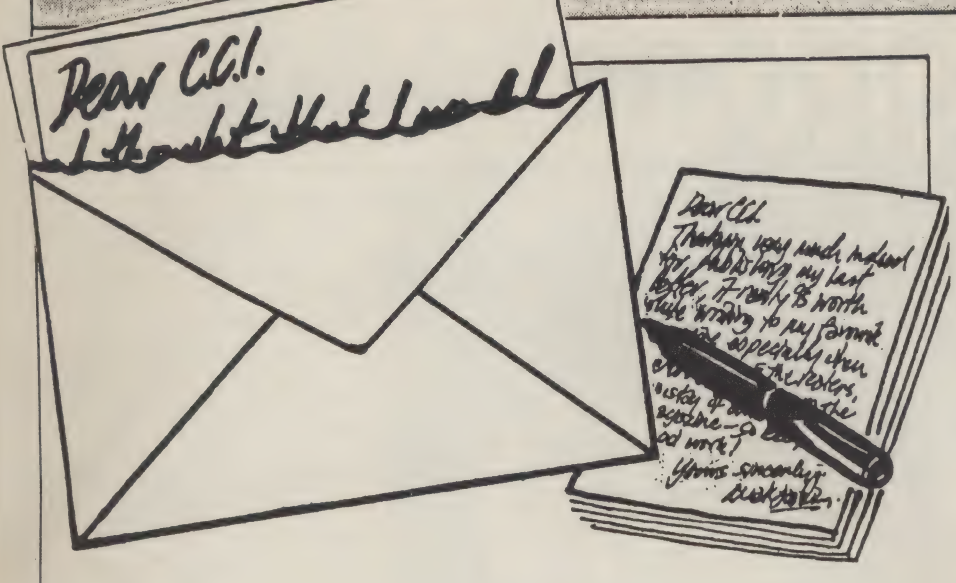
C64/128K £9.99 (c) £14.99 (d).

1901 Monitor Conversion

Trilogic are now converting 1901 monitors. For the modest sum of £29.95 or £25.00 to callers, and considering, none of the existing inputs are affected in any way, it surely beats paying £400 the advertised price for the 1081 Amiga monitor.

Trilogic tells us the Philips CM8833 colour monitor appears to be very similar if not identical to the 1081 and is about £130 cheaper.

write on... and on... write on...



Dear CCI
I just thought I'd let you know that contrary to what you informed Dave of Isleworth about upgrading his VIC 20 to a CBM 64 about, it IS possible. You can currently purchase a 64 circuit board from Evesham Micros for £45.00 (yes, this is written on Amiga Textcraft) solely for this purpose, relatively cheap considering how much a 64 'over the counter' may cost. However, Evesham only have a limited stock of these circuit board, so it may be possible that by the time this is published in your letters column (if at all), Dave just may find himself out of luck yet again...
Yours faithfully
Phil Jackson, Bradford

Ouch! (Again!). One of these days we're going to get enough time really to read all the adverts in CCI! Apologies to the noble Richard Austin of Evesham Micros for supplying these useful boards. By the way, the remark about Amiga Textcraft was because there was no £ sign — which we have put in. But for pulling us up so correctly Phil gets a CCI Tee Shirt.

Dear CCI
I have a Commodore 64 and Vic 20. Please have you a club, which includes the Vic 20, for there was a Vic soft club but is that still going? Is the Vic 20 still in action. Has it been scrapped? I hope not. Please let me know if you have a club for the Vic and the 64.
Yours faithfully
Greg Vaughan

Dear Greg
We don't run clubs for the Vic 20 or any machines. However, you will sometimes find advertisements or news (see CCI October) about the Vic 20. In our opinion the Vic isn't 'still in action' though some faithful fans no doubt still use it. Good luck to them.

Dear CCI
I am writing to you with a query. On contemplation of the idea of upgrading to the new Amiga A500, I was wondering "What will happen to all my '64 software?" Would you happen to know of any device which would enable me to use this on the Amiga? I would be very grateful if you could write me with any possible information concerning my question.
Yours sincerely
Ray Hill, Victoria, Australia

Dear Ray
You'll be glad to know you don't have to throw away your 64 stuff because there is about to be a 64 emulator available for the Amiga. This should let you use your 64 software on the Amiga — and means you won't have to pay for Amiga versions of your favourite games.

Dear C.C.I.
As a Commodore 64 owner/user, I congratulate you on this stupendous mag! It is brilliant and a lot better than any other Commy (I mean Commodore) Magazine. The hints, reviews and even the ads are very enthralling! You make honest profit by not advertising as much as others; eh, no names mentioned. Please keep up the everlasting good work.
Kevin Malloy, N. Ireland

Dear Kevin
Thanks for the compliments but to be honest we actually have at least as much advertising as other magazines but we print more pages than other magazines it just looks less. Like all magazines, if we didn't take advertising, CCI would cost a lot more to buy. We're sure our advertisers will love to hear that when their ads appear in CCI they become 'enthralling'! Just another case of infectious CCI magic no doubt.

Dear CCI
Having bought Mini Office II on the basis of your review, may I say that it is, as you suggest, very good value. You may also be please to know that Database Software were so prompt in their service that I received the package only 10 days after posting my order. Incidentally, this compares most favourably with two other British software companies, one of which took three weeks to send a product update and then omitted to enclose the additional documentation. It will probably take another three weeks to obtain this. The other company lost two letters, the second of which enclosed a copy of the first and I finally received my update from this Company after about 8 weeks. both companies advertise in your magazine.

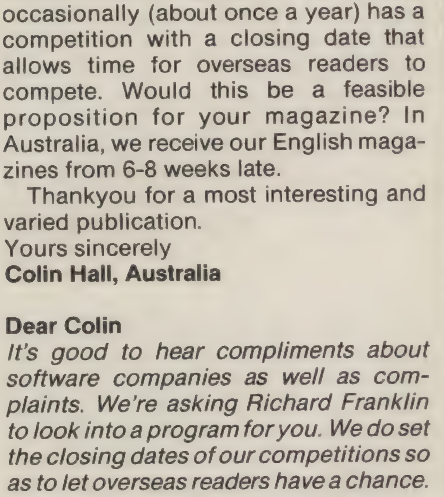
Returning to your review of Mini Office II and the comment that you planned to get Richard Franklin to write a series of articles on the use of Mini Office II, may I make a suggestion?

There may be users who, like myself, have been using 'home-made' databases and who would like to transfer their files to Mini Office II. Assuming sequential files with fields of fixed lengths (padded, where necessary, with shifted spaces), each field being terminated by a carriage return, would it be possible for Mr. Franklin to publish a short program for making the conversion?

Other other matter — an English woodworking magazine which I buy, occasionally (about once a year) has a competition with a closing date that allows time for overseas readers to compete. Would this be a feasible proposition for your magazine? In Australia, we receive our English magazines from 6-8 weeks late.

Thankyou for a most interesting and varied publication.
Yours sincerely
Colin Hall, Australia

Dear Colin
It's good to hear compliments about software companies as well as complaints. We're asking Richard Franklin to look into a program for you. We do set the closing dates of our competitions so as to let overseas readers have a chance. We publish our November issue at the beginning of October and set the closing date at least 10 weeks after CCI is out. If that's not long enough we'll have to look at it again! But no-one wants to wait years for results, do they?



COMMODORE COMMS

In the last issue of CCI we touched on Micronet's Commodore area, Solely Sixty Four and More. This month we take an in-depth look at the 'on-line' magazine for Commodore owners...

When British Telecom's Prestel service was launched onto an unsuspecting world back in the late 1970s few thought that the most successful exploitation of the medium would be a service catering for home micro owners. But in 1987 that's how things stand, and it's not hard to see why. To access Prestel it's necessary to use either an expensive dedicated adaptor or a microcomputer with a modem and software.

You probably already have the most expensive item, the computer, and the modem is supplied free by Micronet with an annual subscription to the service.

Well, for a start there are over a quarter of a million pages on Prestel, allowing you to do everything from teleshopping to looking up the snowfall in the French Alps. The idea of electronic mail — being able to communicate instantly with up to 150,000 other people — might also appeal to you. But you're a Commodore computer owner, so what you really want is Solely Sixty Four and More, Micronet's dedicated on-line Commodore magazine.

Solely Sixty Four and More (SSF for short) is run by Andy Waller, a Commodore 64 (and now Amiga) user of some experience. He's been editor of SSF since it started in 1985 and despite being based in the wilds of Lincolnshire — while most of Micronet's staff work in London — it's a full time occupation for Andy.

Solely Sixty Four and More's contents are not unlike CCI's — with news of the latest developments in the Commodore world, reviews of new programs, articles about programming, hints and tips, charts and letters.

But the vital difference is that SSF isn't printed and delivered to your home once a month, it's there whenever you want it — 365 days a year, 24 hours a day. And the chances are that something new will have been "printed" since you last looked.

But instant information isn't the only advantage of Micronet. A large part of SSF is devoted to telesoftware — software that can be "downloaded" straight into your computer. At any one time there are about 80 Commodore programs on Micronet, and new titles are added every week. Of those 80 the majority are for the Commodore 64 (or Commodore 128 in 64 mode) but there is also a selection of C128 programs and even some multi-compatible titles which will run on the C64, C128, C16 and Plus 4.

Telesoftware

The concept of telesoftware is certainly extremely attractive, but is the software worth having? Micronet's Software Manager Phil Godsell believes the answer is a more than resounding yes. "We now have very high standards even for free programs," he told CCI. "All software is evaluated by Micronet before it can go onto the system. I think you would be happy to pay for many of the free titles."

Of the 80 or so Commodore titles on the system at the time of writing about half were free and half commercial programs which you pay for. It's worth noting that most of the free programs are in machine code and the quality is often up to commercial standards.

But Micronet telesoftware isn't just about games. A very good selection of Commodore utility software is also on offer, again free. BASIC Toolkit, Hi-Res Graphic Toolkit, Sprite Editor, Fast Disk Formatter, Disc Copier and Disk Speed/Alignment Checker are just a sample of the titles on the system when we looked. "You could pay a lot of money for these programs," says Phil Godsell, "or you could save a lot by downloading them from Micronet!"

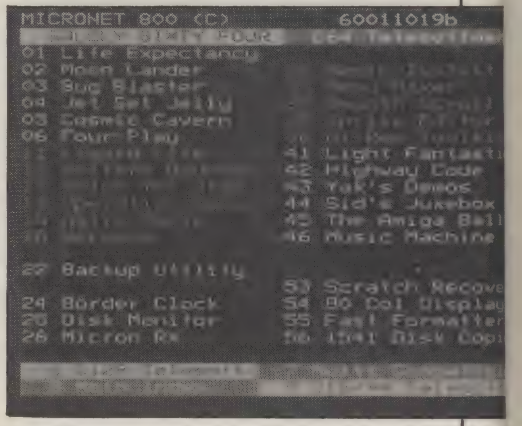
Of course the free programs are important, but what about the commercial ones. We noticed titles from Hewson, Code Masters, Firebird, Palace, Elite, Live Wire and Precision amongst others — all at good prices. Firebird's Silver range for example is selling at £1.50 on Micronet, compared with £1.99 in the shops.

Letters

But although Telesoftware is an attractive feature of Micronet we shouldn't overlook the editorial product for Commodore owners. One of the most popular parts of SSF is the letters section. Andy prints around fifty every week, with topics ranging from the price of the Amiga to the latest hit game.

Going through the rest of SSF we have reviews of new products — both hardware and software, an extensive hints and tips area which is split into various sections such as disk drives, printers, programming, peeks and pokes and so on. Again taking advantage of the medium, there's also a readers' software chart. Every week you can send in votes for your favourite program and help to compile the SSF chart. "We usually find it's pretty close to the official charts, but sometimes there are a few surprises," says Andy.

If you're new to communications don't worry. There's a section on SSF just for you. Called Networking, it features everything from a beginner's guide to a list of bulletin boards you can access. Insight is SSF's in-depth features section, with articles on programming techniques and so on.



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MICRONET 800 (C)            60011019b
01 Life Expectancy
02 Moon Lander
03 Bug Blaster
04 Jet Set Jelly
05 Cosmic Cavern
06 Four Play
                        41 Light Fantasti
                        42 Highway Code
                        43 Yak's Demos
                        44 Sid's Jukebox
                        45 The Amiga Ball
                        46 Music Machine

22 Backup Utility
                        53 Scratch Recove
24 Border Clock         54 80 Col Display
25 Disk Monitor         55 Fast Formatter
26 Micron Rx            56 1541 Disk Copi
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Amiga

Solely Sixty Four and More originally started off as a Commodore 64 area, but has developed with Commodore to cover the 128 and Amiga. And now the Amiga has its own magazine within SSF. Called simply "Amiga" the contents mirror SSF but for the Amiga.

Another Commodore area, though not part of SSF, is ICPUG — the Independent Commodore User Group.

But the Commodore owner joining Micronet should not forget the rest of the system — a lot of it is not aimed at users of any particular machine, and is just as important to a Commodore 64 user as a PC owner. Shades, the multi-user game, for example, and Chatlines — where you can hold conversations with other Micronet subscribers. But that's really anotehr story!

For more information on Micronet you can contact Telemap on Durrant House, 8 Herbal Hill, London EC1R 5EJ or on 01-278 3143. If you already have a modem and viewdata software you can log on to the Demo Database. Dial 01-623 8855 (you can look up your local number once on-line) and enter ten fours (4444444444) as the ID and four fours (4444) as the password.

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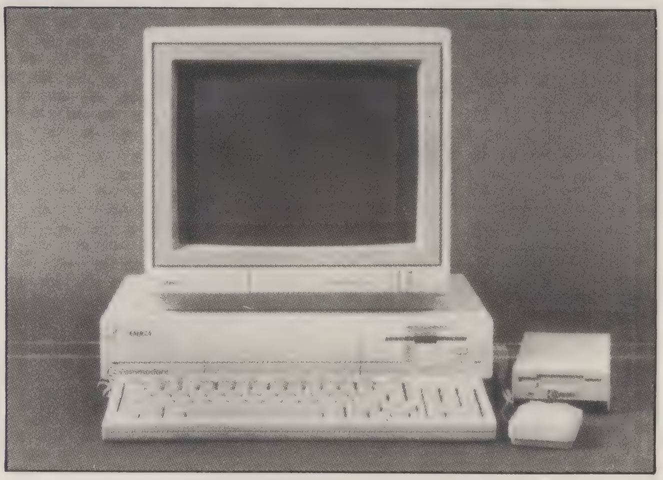

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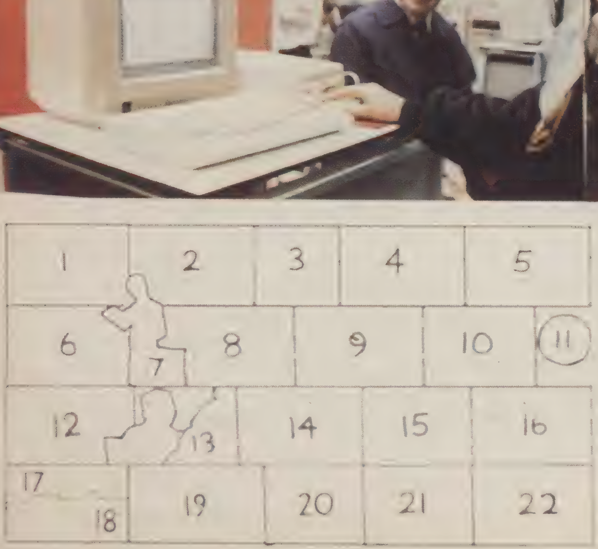
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The Personal Computer World . . . happening

1. *Gremlin drawing the crowds.*
2. *Microprose showing for the first time.*
3. *U.S. Golden gamers.*
4. *Mastertronic Roadwaring them in.*
5. *Telecomsoft's M.D.. Paula Byrne and friends meeting Leisuresoft.*
6. *7 and 8. Commodore's Village and M.D. Steve Franklin reading Ami User Magazine.*

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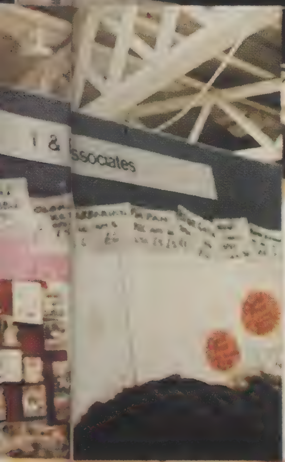
& Associates

RENEGADE
TIME STOOD STILL

9. Microprose simulating a real helicopter trainer.
10. U.S. Gold claiming world leadership.
11. Magnetic Scrolls prizewinning Anita Sinclair.
12. Electronic Arts unleashing the imagination.
13. SS1 VP Randy Broweleit thinking Dungeons and Dragons.
14. T&B selling cheap.
15. Speedfreaks Outrunning the opposition.
16. Byte by Byte's Scott Petersen Sculpting in 3D.
17. Lynn Thomas watching over Micronet.
18. AMS observing the AMX Mouse.
19. Cascade going ACE 2.
20. Genics showing CAM.
21. Renegade making Time Sit Still.
22. Gremlin starring silvergirls.

PCW –

Zack Skinner keeps a personal diary of the recent Computer World at Olympia.

10. Years. Noise. Very loud. Very very loud. Videos. Rolling. Flickering. Looping demos. Looping. Litter. Lots of litter. Cheap software. People shouting to sell and to be heard. This is show business, Personal Computer World show business.

Wednesday. Busy. Strictly business. No-one under 18. So who are those kids crowding the Out Run machines on the US Gold castle — sorry —Stand? **Thursday.** Deals. Lots of Japanese. Acorn's Archimedes may have won an award but the stand is nearly empty. No-one taking the Risc. Amigas are selling well. **Friday.** School parties. Crocodiles of blazered kids. Basically, their teachers are saying, you learn on the BBC. Yeah, say the kids gaping at Gremlin's talking Gremlin, but we play on 64s and Speccys and dream of Amigas and STs.

Saturday. No, we all want to forget Saturday. The earthquake didn't hit Los Angeles, it hit Olympia, Kensington, London. A human earthquake. Say 25K strong. Yes around 25,000 elbowing, plastic bag carrying, leaflet grabbing, sardined but good tempered personal computer users queued and crushed their way round the narrow walkways, eyeing and playing, sighing and maybe even praying for all the promised and pleasing goodies that were offered to their longing screenwise stares. *Saturday was a madhouse.* This was the Personal Computer World. No, not the magazine that sponsored the show but the people who use those boxes that the Commodores and Amstrads of this particular world want so earnestly to shift. The whole computer world and his brother and son and even his sister seemed to be trying to edge his way around the blaring videos and flickering screens. Not to forget the crowd into the biggest single attraction of the whole Show. No, it isn't that man in the blue Microprose cap. He's only Microprose's UK Boss. No, it's the flight simulator. No! Not just a game! A real flight simulator! It weighs 1½ tons! Yes, you can climb inside and fly. No, that man is not a helicopter pilot. He is Stewart Wheeler! Yes, he will help you fly Gunship. That's if you want in the ever-growing queue and you can fight your way through the mob around the Microprose stand. No, Saturday is not something that anybody who was there is going to forget.

Sunday. Serious faces in the crowds. Haggard faces and hoarse voices among the exhibitors. The business areas still busy. The Taiwanese section still still simling politely. The café has some great looking burgers and honey-cured ham. Unfortunately they won't serve you them. They've run out of bread or anything to put them on. The spectators slump against the stands and at four o'clock begin to thin. A few pick up the last of the souvenirs — like ripping off a heavy cardboard cut-out from the wall of Mirrosoft's Stand. At 5 o'clock, it's not tea time but sauve qui peut . . . The demolition guys are in. Doing with impunity what no-one would let the kids perpetrate — ripping down the stands. Just tearing the whole place to pieces. Showtime is over, folks. But the show must go on. Tomorrow there's another show here. Maybe about leather goods. Maybe holidays. They should care. Just get the goddamned stand down and don't bust the big screens if you can help it. Yeah, I know it's a computer but it's got to get out of here.

The Commodore Village — as crisp and chic as an Amanda Cridge suit — crumbles and tumbles under the urgent impact of tomorrow. The Amiga — temporarily — is history. Outside the gaping trucks are being loaded. It looks like the breakup of a circus. But out there — already all over the UK, on planes at Heathrow and Gatwick, buckling their seat belts for Europe, the US and the Pacific Rim, there are people who have been touched by the byte of excitement, who are just a shade more pixelated than they were before they reached Olympia and fought their way around the home of the Gods of computing. We have moved another year into the future — and we have been shown what the future is. It is a new world — a plain-coloured square edged box of tricks called a computer. It speaks to us through a screen and says 'I am increasingly powerful but do not be afraid. I am ever more friendly, User.' It is our future — and it works, and it plays, and it sells. We are all now part of this very personal computer world. It is over for now. But there will be another one next year. See you same time, same place. At the PCW.

Someone called it "a mirror on the industry . . . a look into the future . . .". It reflected as much as most people could want of the different areas that you might need in computing. Desk Top Publishing, Online Communications, Expert Systems, Productivity Areas, Networks, The Open University —even the Data protection Registrar! Not to forget what most of the crowds came for — entertainment. You could even win a holiday in Thailand from a travel agent. Why were there a travel agent and an insurance company there? Had they been leftover by mistake from the previous week's Olympia show? Odd islands in a technological ocean.

Let's take it the easy way — alphabetically. *Amiga.* Not too difficult to choose first anyway. Anyone who had any doubts before — and that might have included a fair part of the UK software industry, did not carry those doubts away from the Commodore Village. The key as everybody knows with the Amiga is to let the dog see the rabbit. People — computer people or just people — who see the Amiga, fall for it. It's love at first sight. 9 out of 10 computer using pussy cats certainly prefer it. And you needn't mention the ST because though the Atari village was larger it looked like a street market and there was no comparison in any fairminded observers view about the evidence of the quality either of Commodore's stylish and dignified presentation or of the dazzling products on display. There were even rumours — untrue no doubt — that the genlock peripheral on show for the ST was neatly

CONTINUED ON PAGE 22....

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connected to an Amiga under the table. But nobody would do a thing like that to sell computers would they? The Commodore Village was designed to spell class and confirms the CBM view that the Amiga is a machine that has to be taken 'seriously'. Not everyone agrees and some software people criticised the approach, asserting that CBM's fate depends on the A500 which is above all a games machine, and that sales in big numbers will come only if CBM realises that and forgets the genteel and goes bare knuckle. We shall see who is right . . .

3D

The Amiga itself with ***Byte by Byte***'s Sculpt 3D and ***Aegis*** Videoscape had made a leap into the three dimensional video future. Pictured as it as on the cover of the September Issue of Commodore Business and Amiga User Magazine, Video was the star of a glitzy performance. Every copy of the magazine flew off the Information Stands that CCI staffers were manning for Commodore. Amiga interest was feverish.

Commodore's big guns attended the Show. Gail Wellington, CBM's Director of Product Development, Christian Anderson, European Marketing Director and Steve Franklin, Commodore UK's new MD all looked as if they had lost a ten pence piece and found a fifty pound note. The Amiga may not have had the technical dazzle of the Archimedes or the new Clive Sinclair baby but it was here and now and undeniably a universally admired star of the Show.

Anco, whom we hear is going so big on the Amiga that it is about to bring out the first ever compilation of games for the 16 bit comer, also has its long-awaited Winter Events for the C16 now and a new game for their 64 Cycle Knight. ***Burocare*** was on the CBM Village showing an artists workstation. No, not an Electronic Arts programming aid but an Amiga set-up that allows input from video recorders etc and output to a variety of sources. Designed for professionals like advertising agencies, it would set them back a cool £12K but probably earn them many thousands more.

Busbyte, also on the CBM Village, are well-known for selling everything for the Amiga. And ***CAD Vision*** had a CAD system on the Amiga that for a mere £2000 could equal other systems that cost £30,000.

Down-to-earth

Compunet was stretching its wings and showing an Amiga access to its network. ***D&H Games*** earned our admiration for its down-to-earth approach announcing its latest game "Football Director" by saying that it "dispenses with the usual mundane little tunes which every software house feels they must include in their games and all the fancy packaging to hoist up the price". ***Datel*** were there with their renowned collection of quality add-ons including some for the Amiga. ***Digital Integration*** had new simulations — F16, ATP and Bobsleigh.

Electric Distribution had the excellent Timeworks products and a special bundle including wordprocessor and spreadsheet for under £100. They also had a new range of very low price — £9.99 — home productivity packages.

Running under a new slogan — Unleash the power of your imagination — for the first time at the PCW Show was ***Electronic Arts***. The giant US entertainment software company — CCI's Software House of 1986 —built a solid-looking stand that housed a battery of screens showing the huge range of Electronic Arts products that is about to pour out onto the European computer scene. All the top EA brass was on show led by President Trip Hawkins and Director of European Publishing, Mark Lewis. Electronic Arts were presenting a useful campaign to get a 100 strong panel to help them judge the quality of games. A meritable effort to bring a wider public involvement in entertainment software development.

Evesham Micros, who had never exhibited at the PCW before, found considerable interest in its Excelerator Disk Drive and the make-your-old-64C-into-a-flash-new-C64 case Slimline, a popular buy.

One of the most attractive sights of the Show was the silver clad space-style girls who manned ***Gremlin***'s biggest ever stand. Ian Stewart's growing software house had taken the trouble to create a real — or rather computerised — Gremlin that talked —and in another form walked around the Show. Both caused considerable sensation.

Sensation

One of the first sensations of the show was the disagreement between ***Hewson Associates*** and Firebird as to who owned the latest Andrew Braybrook and Steve Turner Shoot 'em ups. The two programmers — longtime Hewson creative collaborators — seemingly took Hewson by surprise by signing a contract with Firebird after Hewson had announced their latest games as its stars of the Show. However Hewson did have a new game by Impossaball author John Phillips called Nebulus, for the C64.

ICPUG's stand was always crowded and ***Interceptor*** announced that its successful Pandora label's "Into the Eagle's Nest" was about to arrive on the Amiga, and ***Level 9*** had their new Knight Orc and Gnome Ranger for the same machine. ***Leisuresoft***'s Tony Adams was proudly showing a new joystick. He gave one to CCI which was promptly stolen off the stand by someone who knew a good joystick when he saw one. One of the biggest successes at the Show was the combined might of ***Mastertronic*** and ***Melbourne House*** — usefully both beginning with M. Mastertronic modestly proclaiming itself the world's leader in computer games highlighted their vast new range of 16 bit games for the Amiga. Undoubtedly the star of their stand — flashing away on multiple screens — was Roadwars. Written on the Amiga for their Arcadia Video games label, if it hadn't been for the general blare of soundtracks, you would have heard the thud of jaws dropping as the crowds took in the video come-to-life-in-a-home-computer spectacular quality of Roadwars. It will be interesting to compare it with US Gold's forthcoming Out Run when that biggie hits the streets. The success of the Roadwar effect could be read on the satisfied look on Mastertronic Boss Frank Herman's face. Mastertronic staged a challenge match of UK computer magazines' players versus the undefeated US Video Champions team who were flown specially from the States. Or previously undefeated. With CCI's Tony Horgan as one of the UK team of four, the US team bit the Roadwar dust. And Horgan carried back a bottle of champagne to celebrate.

CONTINUED ON PAGE 24...

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THE PERSONAL COMPUTER WORLD...

For the serious computer user who wants to build advanced software solutions — or program another Roadwars — ***MicroAPL***s version of APL 68000 was shown to take full advantage of the power of the Amiga. They showed on the Commodore Village. Led by the sparkling Lyn Thomas, ***Micronet*** had their own as usual crowded stand. We heard one Scandinavian guy offering "to be your agent". We don't know if he was offering it to Micronet or personally to the suntanned Lyn.

Real live simulation

On the roof — yes it was as big as a grandstand and had two floors — of the ***Microprose*** massive establishment could be seen Wild Bill Stealey, the company's founder, entertaining bemused Europeans and delighted pressmen with his extrovert view of the world of simulations. Down below, the real live helicopter simulator was the constant attraction of hundreds of eager Microprose sim fans. But the growing Microprose empire did not stop there. The quality productivity label ***Springboard*** is now distributing through them as is ***Origin*** of Ultima fame and the ***Suncom*** joystick. Microprose has leapt to prominence since last year when Stewart Bell first came on the scene at the 1986 PCW.

Mirrorsoft too under their popular MD Jim Maconachie have also progressed rapidly. Part of the growing Maxwell communications corporation, it has become a leader in the 16 bit market with such winners as Mindscape's Defender of the Crown and had Bob Jacobs of Cinemaware, creators of Defender and a forthcoming big Amiga entertainment product — King of Chicago. They also have Bermuda Project slated for release and a 64 game called Mean Streak.

Novagen were showing a follow-up to the popular Mercenary — Damocoles and a simple but good looking shoot 'em up — Backlash, for the Amiga. ***Nucleus***, on the CBM Village, showed a spectacular manufacturing process control system on the Amiga.

At the other extreme, possibly Britain's most enthusiastic game player ***Ocean***s Software Manager Gary Bracey proudly was seen among the cutouts on the ***Ocean/Imagine*** Stand depicting Renegade — at showtime Number One in the Charts. Ocean have a strong hand for future releases with the Konami video game conversion Gryzor and a new original game from Denton Designs "Where Time Stood Still" — a massive arcade adventure, action *and* strategy game. They have their first 16 bit project going with ECO.

The useful GEOS range was on show through ***ONCE BYTTEN*** and ***Palace Software*** had a massive blow up of Maria Whitehead their Barbarian star pin-up. ***Postronix*** had a huge range of low-priced Commodore goods and ***Piranha*** had their latest hits Flunky and Yogi Bear. ***The Power House*** had — I kid you not — Sick Bags and the slinky Jo Meads. ***Precision*** were launching their outstanding Superbase Professional on the Amiga. ***Prism*** had Kevin Toms and Football Manager 11. ***Robtek*** had Gizmoz and Hollywood Strip Poker and ***Sentinel*** were showing their outstanding word processor WordPerfect. ***Software Projects*** were there with Star Paws and Hysteria and ***Taurus Impex*** —at last — had their Amiga Acquisition database. ***Telecomsoft*** had a mountain of a stand and were showing videos of forthcoming products and the new Bubble Bobble, their most successful since Druid. ***Trojan*** had their ever popular Light Pens. ***Tynesoft*** launched Winter Olympics which has some outstanding graphics and will be coming on all formats.

Out Run

And there was Out Run. Sorry ***US Gold.*** With a massive stand — not to mention the largest banner at the show which carried across the whole of one end of the huge hall to advertise their new Tim Chaney-managed label ***GO!*** — "Gold" unquestionably looked huge and hugely successful. Not only did they have one of the top attractions of the Show — the video games sit-in machine of Out Run which everyone seemed to want to play — even the night *before* the show when only the exhibitors were allowed into the hall, there were people crowding round the Out Run machines and queuing to try — they also had ***Epyx'*** California Games drawing big and small kids to the TV screens. It is, as the soundtrack proudly, announced, "the best game so far this year says CCI". And US Epyx Boss David Morse was there to help the UK's Helen Browne boost it. Also getting crowded at the top of the skyscraper US Gold construction was ***SSI*** VP Randy Broweleit for the coming label is also handled by US Gold in Europe. There is no doubt about it, the Geoff Brown Empire seems to go from strength to strength.

So, how did you find the Show? Well, it was crowded and noisy and busy and hectic. And if there wasn't anything — except perhaps Roadwars — that stood out as really mindblowing there was something that seemed to strike everyone who has been to many PCWs. It was more than ever before a sense of solidity. Last year, they were giving prizes to the like of Mikrogen just for staying in the software business for five years. That sort of thing is obviously the kiss of death for now Mikrogen is no more. There were no prizes for that sort of thing this year but probably they are no longer needed. For the greatest sense of the show was that of a kind of coming of age. Perhaps it was reaching double figures — the tenth show — but something gave the whole show a feeling of maturity, as if this very new vibrant and prosperous industry was settling down to reality, to the serious business of making money. It wasn't just a pack of amateurs who had written a good game and made a quick and lucky buck any more. It was — as CRL's Clement Chambers complained — less exciting, even a little dull for those who were not raking in the orders. But for most people professionally involved with the home computer industry, it gave the sense that at last the business for which this show is run is here to stay. No, the home computer industry won't remain the same and there will still be many changes to come but it is now, in the business phrase — a mature industry. Not so thrilling, not so scary, not so uncertain. It is *mature* — and that means solid and rich. About £80 million in the UK alone this year will be turned over and three or four times that around the world. And when that kind of money is involved businessmen — even personal computer businessmen — start to act maturely. With that much money at stake in the personal computer world, it's not very surprising is it? So, really, how did you enjoy the Show? Well, Maturely, I guess.

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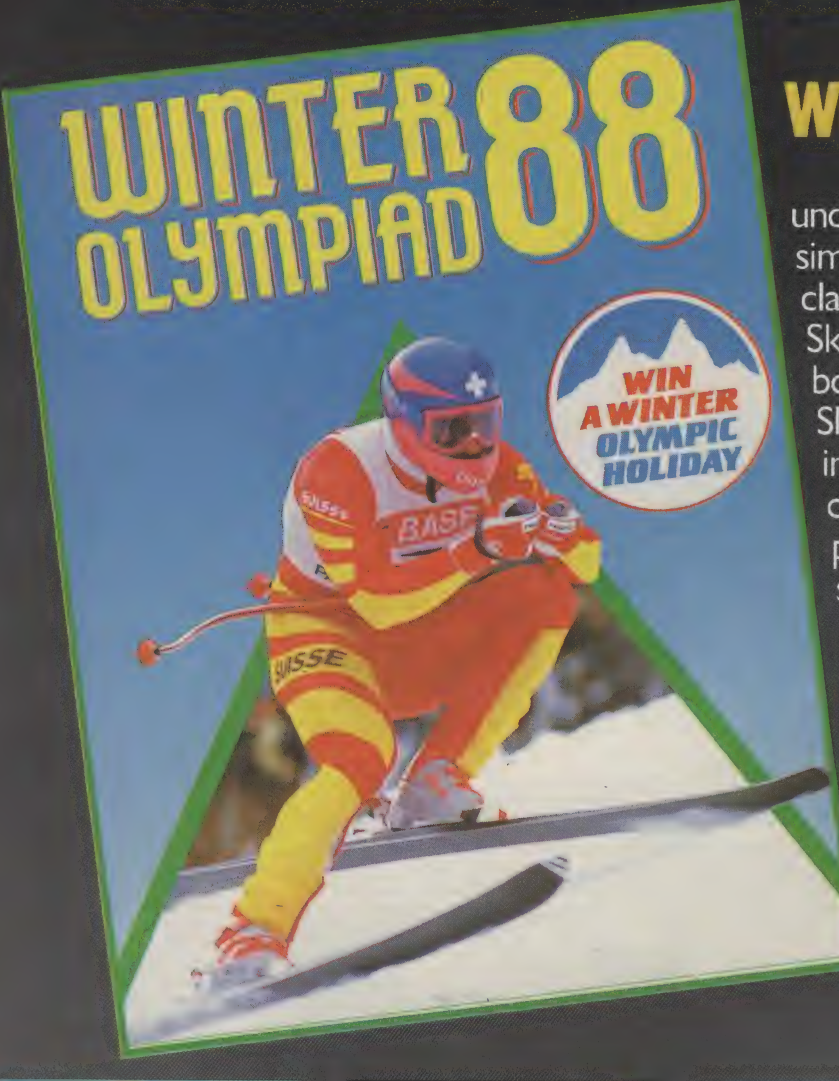
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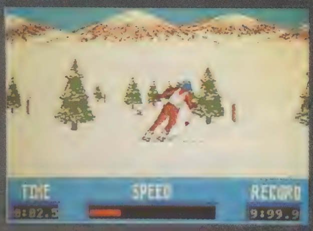
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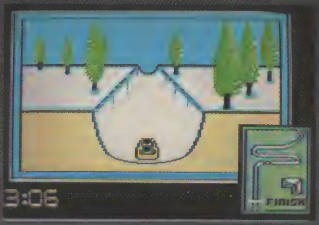

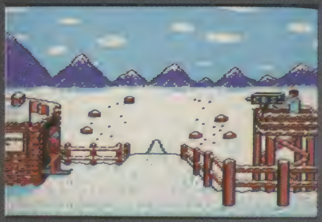

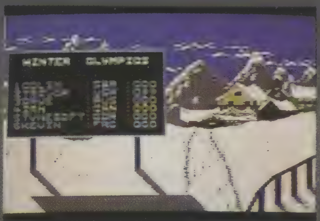
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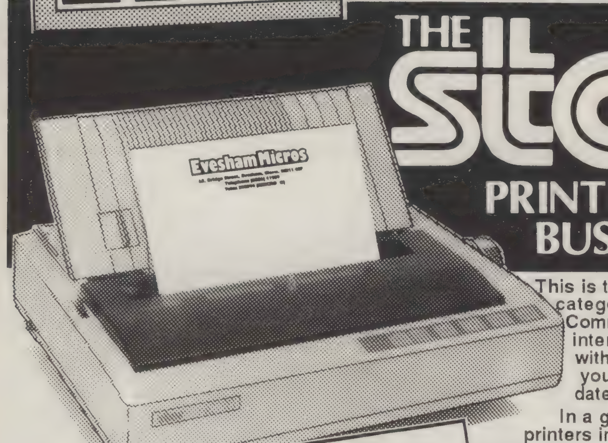

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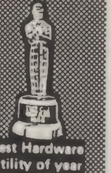

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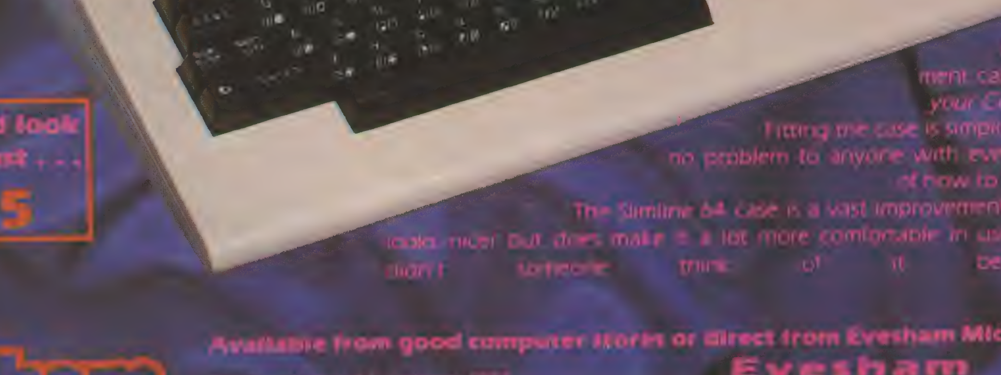

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EASY MUSIC

Commodore 64 Music Part 4

Ian Waugh sifts through SID's Filters

Filters are an essential part of the synthesiser's armoury. In a personal computer, however, they are quite rare and rather a luxury. The filters in the Commodore 64 enable us to refine and hone our sound to a high degree.

What is a filter?

A filter is used to filter out or remove harmonics from a waveform. The tone controls on a Hi-Fi is a type of filter. The SID chip contains three types of filters which each remove a different combination of harmonics.

If we plot the harmonics of a wave against their amplitudes we will generally find that the fundamental, the tone which gives the wave its pitch, is the strongest or loudest. As the harmonics increase in frequency they are generally quieter.

Within this spread of harmonics we need a reference point from which to centre the filter's effect. This reference point is called the cutoff point or cutoff frequency and is adjustable. In the SID chip it covers a range of approximately 30Hz to 12kHz. Let us have a look at a filter now and put these terms into perspective.

The low pass filter

This is the most common of all filtes and, as its name implies, it passes low frequencies. Figure 7.1 shows how the harmonic content of a sawtooth wave is affected by the response curve of a low pass filter. In this example, the higher frequencies are cut down or attenuated from the reference point or cutoff frequency. You can see that the first few harmonics are unaffected.

If the cutoff frequency is increased, the cutoff point on the diagram would move to the right and so allow more high harmonics through. As this filter passes the lower harmonics, it produces a full sound.

The high pass filter

This passes the high frequencies and attentuates the lower ones. It is a mirror image of the low pass filter and its effect on the harmonic content of a wave is illustrated in Figure 7.2.

It can be seen that the fundamental frequency will be attenuated which would seem to indicate that the wave would lose its pitch. Experiments have shown, however, that if the ear is given a series of harmonics or overtones which fall within the harmonic series it will 'hear' the fundamental pitch even if it is completely missing. This enables us to hear, for example, a note as low as 16Hz providing the accompanying harmonics are present. 16Hz is below our normal hearing range but we hear the harmonics and mentally infer the fundamental. All of which just goes to confirm what a complicated process our sense of hearing is.

The band pass filter

This passes a band or group of frequencies either side of the cutoff point and is illustrated in Figure 7.2. The bandwidth determines how wide a band of frequencies will pass through although we can not alter this on the 64. The average band pass filter has a narrow band width.

As this filter also attenuate the lower harmonics it, too, will produce thin sounds.

Combining filters

We can use the three filters in any combination. Due to their arrangement in SID, the overall effect will be one of passing a sound through them in parallel. The most useful combination is the low pass and high pass filters which combine to form a band reject or notch filter.

The band reject filter

This is the opposite of the band pass filter and it rejects or attenuates the frequencies around the cutoff point. You can see from Figure 7.2 how, if the curves of the low and high pass filters are combined, a band reject filter will be formed.

Altering the pitch

It can be seen from Figures 7.1 and 7.2 that as long as the cutoff point remains fixed, the harmonic content of the sound output will remain fixed only if the pitch of the wave is unaltered. Changing thepitch will effectively

Figure 7.1

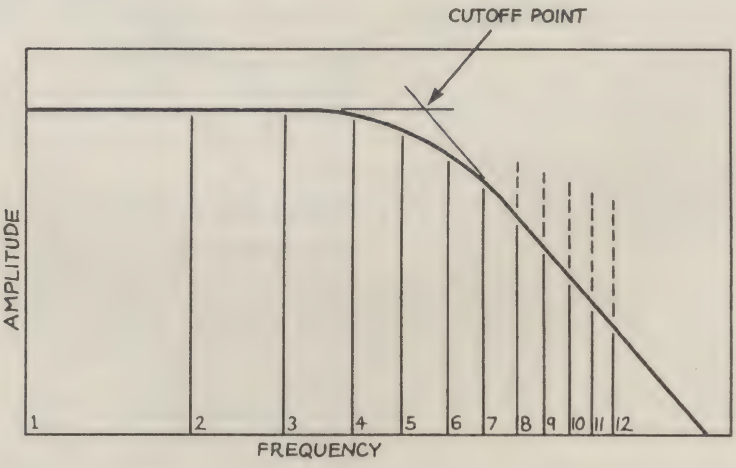
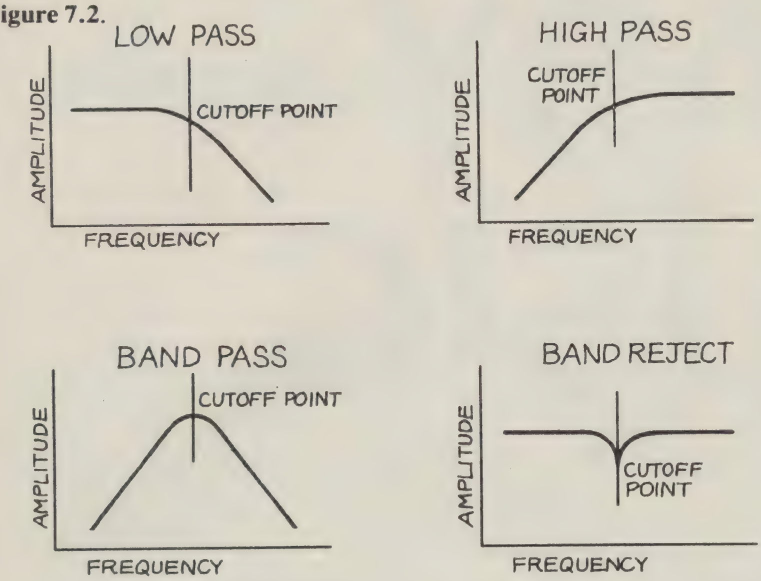


Figure 7.2.



move the harmonics left or right in relation to the filter slope.

Most synthesisers permit keyboard control of the filter to allow the cutoff point to follow the pitch. Also, the tone colour of most instruments changes with pitch: the higher pitches are usually brighter than the lower ones.

The waveform of many instruments, such as wind and brass, also changes with the production of each note. To achieve this would mean linking the envelope generator up to the filter.

We can duplicate these effects on the 64 by careful programming although BASIC is generally too slow to do this effectively.

Resonance

Resonance in filters is produced by introducing positive feedback into the system. A good example — although not aurally — of positive feedback is when the sound from a PA system enters the microphone and is continually amplified. The result is an ear-piercing scream.

If this is scaled down and controlled, it can be used to reinforce a group of frequencies. This is what resonance does: it reinforces the frequencies around the filter cutoff point.

In most synthesisers, if the resonance control is set high enough, the filter will go into self oscillation at a pitch determined by the cutoff frequency. The resonance control in the SID chip, however, does not allow this to happen.

The introduction of feedback into the system also has different effects upon different frequencies and those away from the cutoff point may be dampened. As the frequencies around the cutoff point are emphasised, this tends to reinforce the dampening effect.

The resonance control in the SID chip produces a marked and extremely useful effect but it does not introduce a lot of resonance into the system.

Resonance increases the intensity of a sound, as you will hear. Figure 7.3 illustrates the kind of effect various resonance and filter settings have on the waveform.

Practical filtering

After all this theory it's time to put the discussion to the test. The program will enable you to try out all the possible filter combinations and settings and hear their effects upon all the waveforms.

Programming the filters

Although there is only one basic filter in the SID chip, it can be set to produce any combination of the filter types we have discussed above. Each voice has the option of passing through it or not and to send a voice through the filter we must do two things.

First, we must select the filter type(s) by setting the relevant bit(s) in register 24 (see September issue). This also controls the volume so we have to keep careful control over the number that we POKE here. Secondly, we must direct a voice through the filter by setting the relevant bit in register 23. This also controls the resonance so, again, we must be aware of the numbers we POKE into it.

Using the program

The program produces a display from which you can alter the filter parametes by pressing the inverted letters. The cutoff frequency is altered by pressing the + and - keys and if you hold down SHIFT at the same time it will increase or decrease in steps of 50. Resonance is increased by pressing R and decreased by pressing SHIFT and R. The waveform can be altered by pressing W and if you select the pulse wave you will be asked to input the duty cycle as a percentage.

T plays a tune — alter the notes if/when boredom sets it — and N holds an A note at the selected octave. The tune spans two octaves and the selected octave is the one it starts in. With octave 0 it is barely a rasp.

When the low pass and high pass filters are selected they form a band reject filter and the screen shows when this is in operation.

If you hold down the R key you will hear how a rapid change in resonance produces a sort of wha-wha effect — although it doesn't change terribly quickly in this program. You can also hear the effect of rapidly altering the cutoff frequency; i.e. sweeping the filter, by pressing A — make sure a note is sounding and the filter is on when you do. In auto mode the program will pause for as long as you hold down any key.

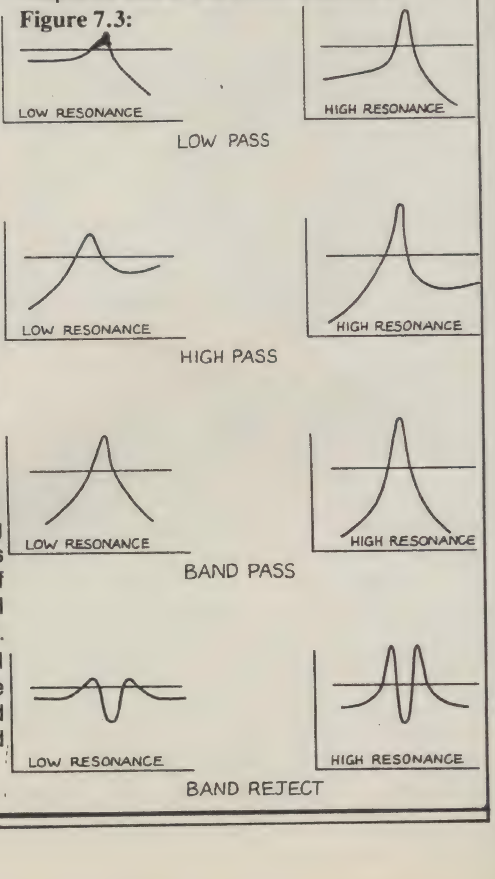
C displays the numbers in registers 21 and 22, i.e. those used to produce the cutoff frequency. The contents of registers 23 (RE) and 24 (FL) are also shown. You will notice how, as we increment the resonance by 1, RE increases by 16. Register 23 determines which voices are sent through the filter. As we only use voice 1 which is set by bit 0 you will see RE increment and decrease by 1 as the filter is turned on and off.

FL, register 24, also controls the volume which we set to 15 in line 2760 and it will not fall below that.

Experimenting with the program

You can hear how great an effect the filter has on a waveform. Even more dramatic are the sounds produced by sweeping the filter and rapidly changing the resonance. Noise responds well to this sort of treatment.

Figure 7.3:



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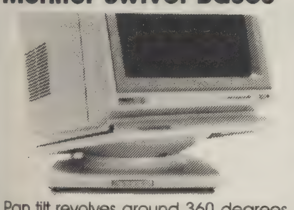

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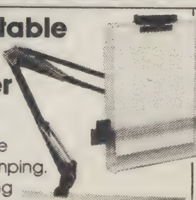

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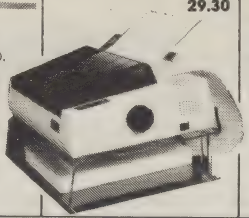

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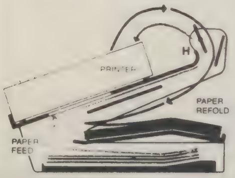

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Kaga KP810/910	3.30	3.10	2.80
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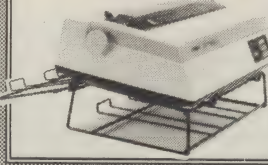

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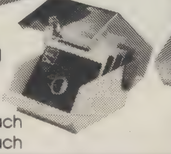

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3+ 10.30 each
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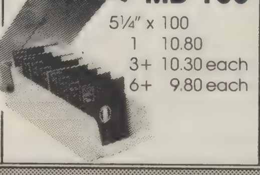

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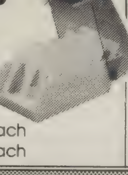

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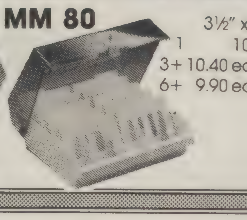

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Commodore Music Part 4

The range of sounds which can be produced with the filter is enormous and when you use these sounds with a suitable ADSR envelope (see November issue) you will begin to see the power and flexibility of the SID chip.

Differences in the SID chip filters

Commodore have issued a technical note which says that owing to variations in the SID chip, it is not advisable to include filter settings in commercial software. This might result in unintentional sounds or even sounds which can not be heard on some 64s.

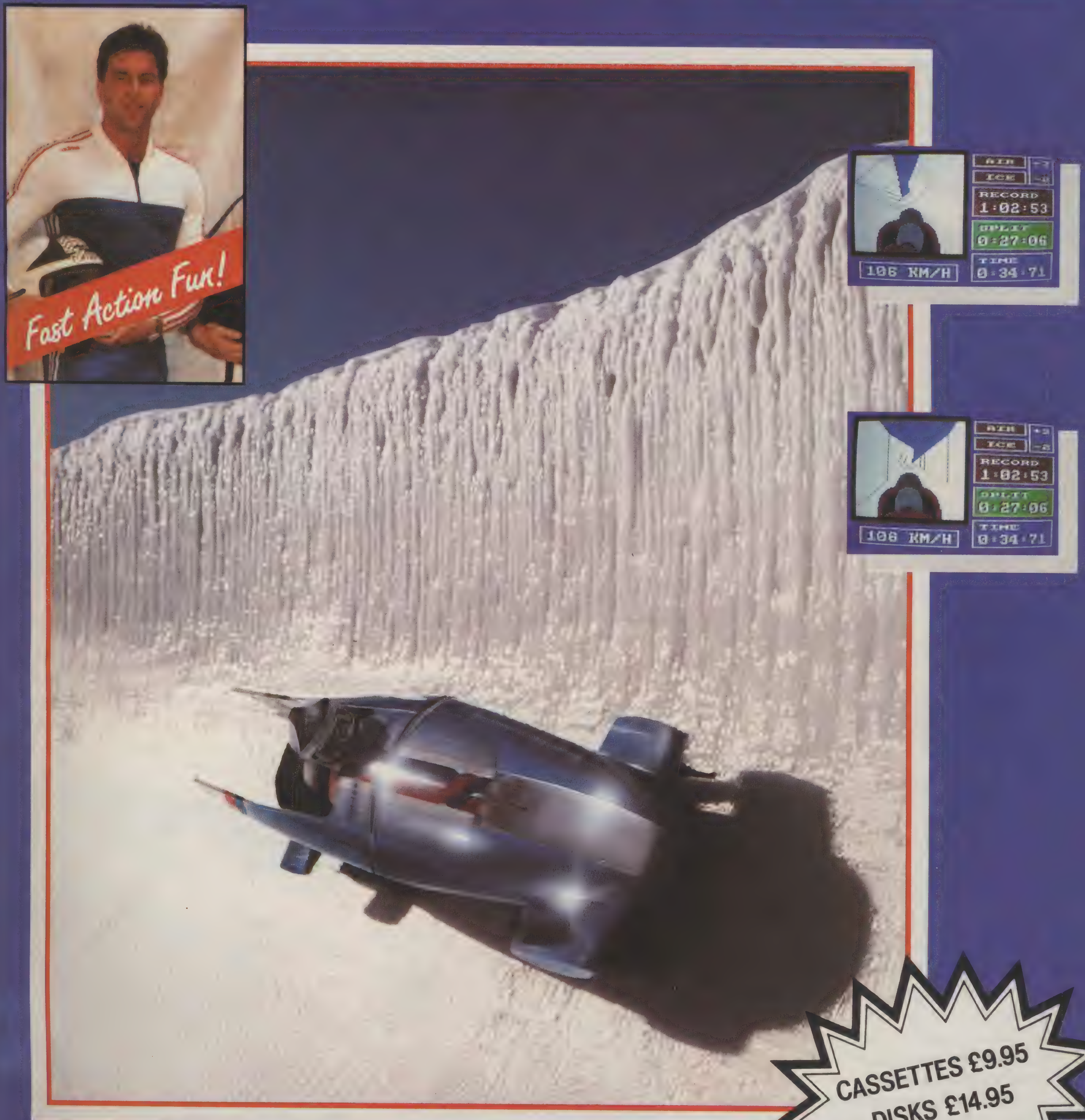
That being so, some filter settings may not sound the same on your 64 as they do others. It would be a grea pity to leave out filter settings all together but, at least you are aware of the situation.

Next time we'll look at some musical effects such as chorus, tremolo and echo.

Ian Waugh

```
1000 REM PROGRAM 7.1
1010 REM FILTER EXPERIMENTS
1020 :
1030 GOSUB 2580:REM INITIALISE
1040 :
1050 PRINT"[CLR]";
1060 PRINT"[HOME]"TAB(11)"FILTER   EXPER
IMENTS[CD]"
1070 PRINT" [RVS]W[RVO]AVEFORM     ";W$(W
A);
1080 IF WA<>3 THEN PRINT:GOTO 1100
1090 PRINT"   DUTY CYCLE =";DC;"[CL]%"
1100 PRINT"[CD] [RVS]F[RVO]ILTER
";FI$
1110 PRINT"[CD] [RVS]L[RVO]OW  PASS
";LP$;TAB(22)"FL(S+24) =";FL;"[CL]  "
1120 PRINT" [RVS]H[RVO]IGH PASS      ";HP
$
1130 PRINT" [RVS]B[RVO]AND PASS      ";BP
$
1140 PRINT" BAND REJECT   ";BR$
1150 PRINT"[CD] [RVS]+[RVO] [RVS]C[RVO]U
T OFF [RVS]-[RVO]  ";TAB(22)"[RVS]A[RVO]
UTO OFF"
1160 PRINT" [RVS]R[RVO]ESONANCE     ";RR;
"[CL] ";TAB(22)"RE(S+23) =";RE;"[CL]  "
1170 PRINT"[CD] [RVS]T[RVO]UNE    [RVS]N[
RVO]OTE    ";NO$;TAB(22)"[RVS]O[RVO]CTAVE
";OC
1180 PRINT"[HOME][CD][CD][CD][CD][CD][CD
][CD][CD][CD][CD][CD]";TAB(14)CU;"[CL]
 "
1190 :
1200 GET CO$:IF CO$="" GOTO 1200
1210 IF CO$="W" THEN GOSUB 1680:GOTO 105
0
1220 IF CO$="T" THEN GOSUB 1370
1230 IF CO$="N" THEN GOSUB 1540
1240 IF CO$="F" THEN GOSUB 1900
1250 IF CO$="L" THEN GOSUB 1970
1260 IF CO$="H" THEN GOSUB 2050
1270 IF CO$="B" THEN GOSUB 2180
1280 POKE 650,255:REM AUTO REPEAT ON
1290 IF CO$="O" THEN GOSUB 1620:GOTO 106
0
1300 IF CO$="R" OR CO$="_" THEN GOSUB 24
90:GOTO 1060
1310 IF CO$="C" OR CO$="+" OR CO$="-" OR

 CO$="A" THEN GOSUB 2250:GOTO 1180
1320 IF CO$="+" OR CO$="|" THEN GOSUB 22
50:GOTO 1180
1330 POKE 650,0:REM AUTO REPEAT OFF
1340 GOTO 1060
1350 :
1360 REM PLAY TUNE
1370 RESTORE
1380 FOR N=1 TO 5:REM NOTES
1390 READ FQ:FQ=INT(FQ/2^(7-OC))
1400 HF=INT(FQ/256):LF=FQ-256*HF
1410 POKE S+1,HF:POKE S,LF
1420 TM=TI:REM SET TIMER
1430 POKE S+4,W:REM GATE ON
1440 IF TI<TM+32 THEN 1440:REM DURATION
1450 POKE S+4,W-1:REM GATE OFF
1460 NEXT
1470 IF NO=1 THEN NO=0:GOSUB 1540
1480 RETURN
1490 :
1500 REM  NOTE DATA IN 16 BIT FORM
1510 DATA 38539,43258,34334,17167,25721
1520 :
1530 REM CONTINUOUS NOTE
1540 FQ=INT(BA/2^(7-OC))
1550 HF=INT(FQ/256):LF=FQ-256*HF
1560 POKE S+1,HF:POKE S,LF
1570 IF NO=0 THEN NO=1:NO$="[RVS]ON[RVO]
 ":POKE S+4,W:GOTO 1590
1580 NO=0:NO$="OFF":POKE S+4,W-1
1590 RETURN
1600 :
1610 REM CHANGE OCTAVE
1620 OC=OC+1
1630 IF OC>7 THEN OC=0
1640 IF NO=1 THEN NO=0:GOSUB 1540
1650 RETURN
1660 :
1670 REM GET WAVEFORM
1680 PRINT"[CD][CD][CD][CD] 1) TRIANGLE"
1690 PRINT" 2) SAWTOOTH"
1700 PRINT" 3) PULSE"
1710 PRINT" 4) NOISE"
1720 PRINT"[CD] [RVS]ENTER NUMBER[RVO]"

1730 :
1740 GET A$:IF A$<"1" OR A$>"4" GOTO 174
0
1750 WA=VAL(A$)
1760 W=2^(WA+3)+1
1770 IF W<>65 GOTO 1860:REM NOT PULSE
1780 :
1790 INPUT"[CD]INPUT % OF DUTY CYCLE";DC
1800 P=INT(DC*40.95+.5):REM 12 BIT NUMBE
R
1810 PH=INT(P/256):PL=P-256*PH
1820 PRINT"  P=";P,"PH=";PH,"PL=";PL;
1830 POKE S+3,PH:POKE S+2,PL:REM SET PUL
SE WIDTH
1840 :
1850 GET A$:IF A$="" GOTO 1850
1860 IF NO=1 THEN NO=0:GOSUB 1540:REM IF
 NOTE IS ON, SET NEW WAVE
1870 RETURN
1880 :
1890 REM TURN FILTER ON/OFF
1900 IF FI=0 THEN FI=1:FI$="ON ":GOTO 19
20
1910 FI=0:FI$="OFF"
1920 RE=(RE AND 240 OR FI)
1930 POKE S+23,RE
1940 RETURN
1950 :
1960 REM LOW PASS
1970 IF LP=0 THEN LP=1:LP$="ON ":GOTO 19
90
1980 LP=0:LP$="OFF"
1990 FL=(FL AND 239 OR LP*16)
2000 POKE S+24,FL
2010 GOSUB 2120:REM ADJUST BAND REJECT
2020 RETURN
2030 :
2040 REM HIGH PASS
2050 IF HP=0 THEN HP=1:HP$="ON ":GOTO 20
70
2060 HP=0:HP$="OFF"
2070 FL=(FL AND 191 OR HP*64)
2080 POKE S+24,FL
2090 GOSUB 2120:REM ADJUST BAND REJECT

2100 RETURN
2110 :
2120 REM BAND REJECT
2130 IF LP=1 AND HP=1 THEN BR$="[RVS]ON[
RVO] ":GOTO 2150
2140 BR$="OFF"
2150 RETURN
2160 :
2170 REM BAND PASS
2180 IF BP=0 THEN BP=1:BP$="ON ":GOTO 22
00
2190 BP=0:BP$="OFF"
2200 FL=(FL AND 223 OR BP*32)
2210 POKE S+24,FL
2220 RETURN
2230 :
2240 REM SET CUT OFF FREQUENCY
2250 IF CO$<>"A" GOTO 2310:REM NOT AUTO
2260 PRINT"[HOME][CD][CD][CD][CD][CD][CD
][CD][CD][CD][CD][CD]";TAB(27)"[RVS]ON[R
VO] "
2270 FOR CU=0 TO 2047 STEP 10:GOSUB 2380
:NEXT
2280 FOR CU=2047 TO 0 STEP -10:GOSUB 238
0:NEXT:CU=0
2290 PRINT"[HOME][CD][CD][CD][CD][CD][CD
][CD][CD][CD][CD][CD]";TAB(27)"OFF":GOTO
 2460
2300 :
2310 IF CO$="|" THEN CU=CU-50
2320 IF CO$="+" THEN CU=CU+50
2330 IF CO$="+" THEN CU=CU+1
2340 IF CO$="-" THEN CU=CU-1
2350 IF CU<0 THEN CU=2047
2360 IF CU>2047 THEN CU=0
2370 :
2380 CH=INT(CU/8):CL=CU-8*CH
2390 PRINT"[HOME][CD][CD][CD][CD][CD][CD
][CD][CD][CD][CD][CD]";TAB(14)CU;"[CL]
 "
2400 IF CO$="A" THEN AA=PEEK(197):IF AA<
>64 GOTO 2400:REM HOLD UP PROGRAM
2410 IF CO$<>"C" GOTO 2450
2420 PRINT"[CD][CD][CD][CD] CH =";CH;" C

L =";CL;
2430 GET A$:IF A$="" GOTO 2430
2440 PRINT"[CL][CL][CL][CL][CL][CL][CL][
CL][CL][CL][CL][CL][CL][CL][CL][CL][
CL]                        "
2450 POKE S+22,CH:POKE S+21,CL
2460 RETURN
2470 :
2480 REM RESONANCE
2490 IF CO$="R" THEN RR=RR+1
2500 IF CO$="_" THEN RR=RR-1
2510 IF RR>15 THEN RR=0:GOTO 2530
2520 IF RR<0 THEN RR=15
2530 RE=(RE AND 15 OR RR*16)
2540 POKE S+23,RE
2550 RETURN
2560 :
2570 REM INITIALISE
2580 POKE53280,2:REM BORDER = RED
2590 POKE53281,14:REM SCREEN = LT BLUE
2600 PRINT"[BLU]":REM TEXT = BLUE
2610 :
2620 W$(1)="TRIANGLE"
2630 W$(2)="SAWTOOTH"
2640 W$(3)="PULSE"
2650 W$(4)="NOISE"
2660 LP$="OFF":HP$="OFF":BP$="OFF":BR$="
OFF":FI$="OFF":NO$="OFF"
2670 OC=4:REM OCTAVE
2680 RE=0:REM RESONANCE/FILTER CONTROL
2690 CU=0:REM CUTOFF FREQ
2700 BA=57743:REM BASE FQ FOR NOTES=A7
2710 WA=1:W=17:REM SET WAVE TO TRIANGLE
2720 :
2730 S=54272
2740 FOR I=STOS+24:POKEI,0:NEXT:REM CLEA
R SID
2750 POKE S+5,0:POKE S+6,249:REM ADSR
2760 POKE S+24,15:FL=15:REM SID ON VOL=1
5
2770 RETURN
```

BOBSLEIGH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"We want to cover the whole gamut of games products... We want to be a major player in all home categories..."

Epyx has a highly professional management team. They are led by David Morse — the Chief Executive Officer. In European terms that means Managing Director. Morse has other claims to fame in the Commodore world (see Box) but now his energies are concentrated on bringing to Epyx a sharp technological leadership, driving it toward outstanding quality and originality in computer games and areas into which that widening field can stretch.

Epyx is famed already for the exceptional quality and creativity of its entertainment software products like World Games set new standards for a particular style of home computer wizardry. They are more American than European or UK in type. They offer not just the immediate kick of a flashy quick-scrolling shoot 'em up but are designed almost as compilations of different games that require expert joystick work in a whole range of varied challenges.

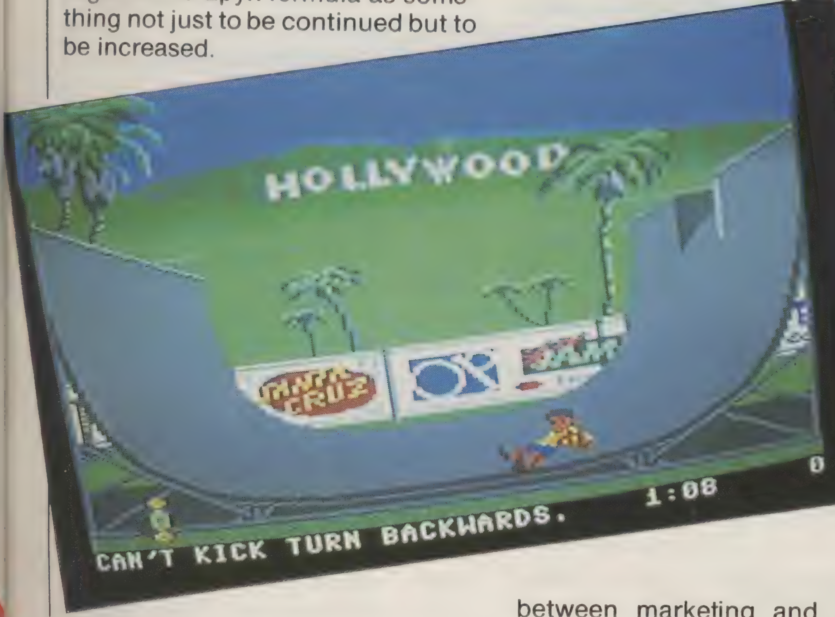
Epyx current releases Epyx Epics and California Games are examples of the quality of this "Epyx Style". Both are full-price but full value productions. Both are clearly built to stand not just hours but weeks or even possibly months of demanding play. They are for the serious player who isn't likely to find in a budget game anything that comes near the feeling of continued excitement and entertainment that an Epyx product can bring.

Another Epyx characteristic is to produce not just a whole series of games linked in a single package like "World" or "Winter" Games but to chain that one package series to other releases so that the player who gets the thrills of one will be pulled into buying another. This is being done with Epyx new series called Street Sports. It has started with the successful Street Sports Baseball, which considering the rarity of Baseball in the UK and the rest of Europe has done surprisingly well already. It is now to be followed by Street Sports Basketball which looks an outstandingly playable product and early in 1988, by Street Sports Football — soccer that is not US gridiron play.

While it is obvious that such marketing for a series can interest a player and make sure he knows of all these Epyx releases, what really makes this most effective is that, going by Epyx past record, there won't be any playing reason not to buy *all* the games in the series. For Epyx games usually get better as they go along — unlike many sequels where the first flush of creativity dries up and the games just become pale copies of the original hit.

"To be a survivor in this business, you've got to mean something to the consumer"

David Morse took over the leadership of Epyx comparatively recently — in January 1987. However, he regards the Epyx formula as something not just to be continued but to be increased.



"Epyx is heading wider than the present market... We want to cover the whole gamut of games products. We want to do other things... We want to do arcade, action games... adventure... We want to be major player in all home categories... To be a survivor in this business, you've got to mean something to the consumer."

The European consumer is probably aware that Epyx marketing here is carried out by US Gold. Recently the links between the two companies have been strengthened and Epyx is now responsible for distributing the successful British label's products in the US.

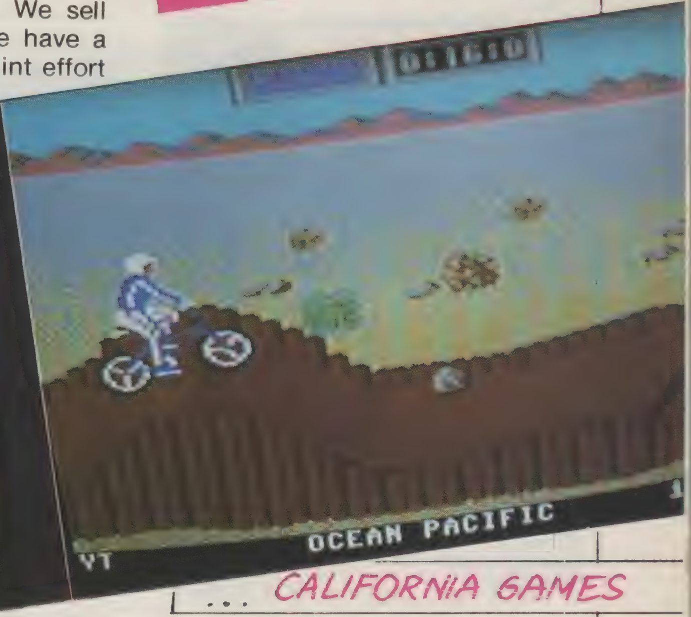
The connection between the two is no accident. US Gold was founded on the acumen of Geoff Brown in going to the States and getting the rights to the major games available in 1984. It was US Gold's local knowledge and sales know-how that made it all work. David Morse believes that situation still applies. "Successful companies rely on local management." He says. "Natives of countries who understand the markets can really do a much better job than Americans 7000 miles away. We'd rather pour our money into developing a product... We don't have a big ego need to be a big baby with Epyx on it... We can do it in the US... We sell to distributors. We work with the dealers... We sell direct to Toys 'R US. We have a different approach... a joint effort between marketing and development people... a good savvy marketing person who's interested in games... sits down with a developer... it's a team approach... California Games doesn't happen by accident... Different people did different games and ideas came from marketing. The common view is that the publisher makes the decisions but we like to build the content... It's the Epyx style..."

"We should have at least a couple of products that don't succeed or we're not pushing hard enough"

He believes that development of outstanding products demands the taking of chances. "We should have at least a couple of products that don't succeed or we're not pushing hard enough... One product each year — off the wall..." Which will that product be this year? He grins. "We'll be starting next year..."

EPYX

EPYX



... CALIFORNIA GAMES

When David Morse joined Epyx in January, he was engaged in doing some development projects for his own and some other companies. "It became apparent that what we were doing and what Epyx needed were very similar..." He comes back to the Epyx philosophy. "What is very very important for Epyx is quality... the most important thing for a company like Epyx to do is create great products. Gil Freeman (Epyx other boss) got it running. Gil is excellent at running it day-today... I'm involved in development... I want Epyx to be Number One in home software. That's our primary goal... A more diversified, technology-based, entertainment-based company." he speculates where the home electronic world might go. "Maybe based on laser disk... VCR... and the next generation... RISC... now that will be a great games machine..."

As one of the two men most responsible for the creation of the Amiga, designed too as a great games machine, David Morse should know a little about that. As the boss of one of the top games software companies in the world he is also in the position to offer an expert opinion on where the home entertainment business might be heading. Wherever it is going, David Morse and Epyx look like challenging for the leadership.

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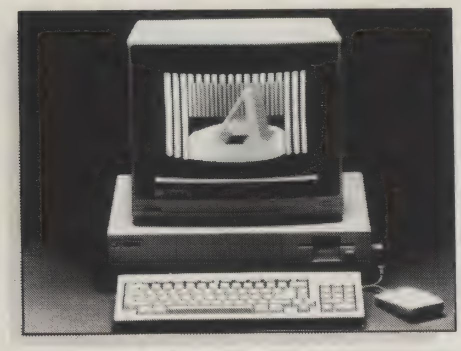

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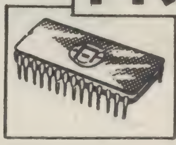

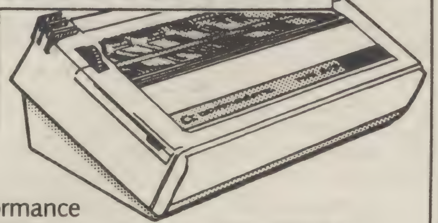

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CBM's EUROBOSS
Christian Andersen

To the Commodore computer owner, the apparently ceaseless management changes at CBM that the Press report must often seem incomprehensible and most disturbing. For a company that has sold more home computers than any other in the world to make news of this kind so often is bound to appear strange. Yet CBM is in an industry where change itself accelerates constantly any company that does not run at least to equal the speed of the industry will soon find itself out of business. And the extreme demands that this everchanging situation makes are one of the causes for people and policy switches, often with surprising rapidity.

Sometimes, though, even the Press —supposedly well-informed — find the changes confusing and we have to confess that CCI fell into error last month when we stated that Commodore UK was run by CBM Germany. "Wrong!" an irate senior Commodore spokesman protested. "Commodore UK is part of Commodore's European network that just happens to be run from Frankfurt in Germany. But it it entirely independent of Commodore Germany!"

To sort out this confusing situation and discover something of how CBM's Europen organisation works, CCI interviewed its operational boss, Christian Andersen, CBM's European Marketing Director.

Andersen, as his name suggests comes from Scandinavia. This is no coincidence for in the Scandinavian countries, micro-computers are dominated by Commodore. Andersen is tough, straight-talkig and very frank about Commodore's problems and performance.

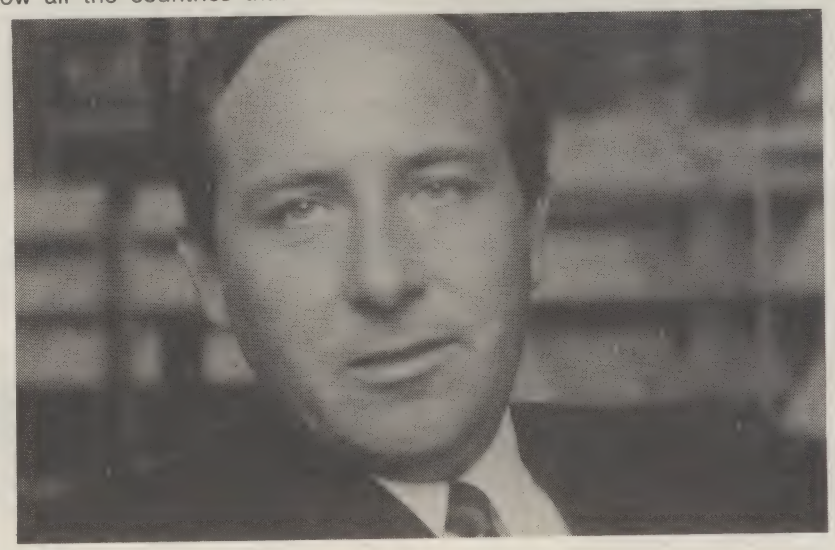
Five Years

He joined CBM in 19;82. He has, in those years, seen dramatic changes both in the computer market and in Commodore itself. He is a strong manager, a marketeer, a top level international businessman. He could be selling anything. It is only incidental that CBM's products are computers. He admits, "I never use computers . . . If I need information, I shout for it . . ."

Yet today, the group of European countries for which he is responsible in Europe is CBM's powerhouse. They are selling more computers now than CBM in the USA. Coming from Commodore's Danish company, he took up his job, officially, in April this year. He is, though, still proud of what was achieved in Denmark.

"The Danish subsidiary is the most successful country in relative terms! They're very good people . . . very well organised! Norway and Sweden, too," he declares, "have clean, good operations!" The big push came in the boom years of 1983/4. "We had 200-300% growth!"

Even though the difficult years that followed when the bottom seemed to fal out of the home computer market and CBM hit very rough water, Commodore in Scandinavia continued to progress. Now all the countries that Andersen controls are gaining speed. "Developments in Spain are moving in our favour. France? There were 16 different computers . . . Some of them I'd never even seen before . . ." But now from having a poorly-run independent distributor set-up, CBM has its own fast-growing subsidiary company. He speaks of the UK, which has also had its well-publicised problems.



"The UK is now turning very fully towards Commodore . . . You can sense the change of attitude . . . In Commodore, we can be very proud of our commitment to the UK. We are showing continuous strength . . . There is a definite turnaround in the marketplace . . . We have very strong belief that the UK is goind a good job . . . That is why we're investig money . . . We're giving them big resources."

This is a reference to CBM's recent splashing out of £1.25 million to sponsore 1st Division foot club Chelsea, and also of the larger sums of money that CBM is spending on advertising in the UK.

"Of course," Andersen goes on a shade ominously, "that puts pressure on the UK, because we want the money back . . ."

So far Andersen has hardly mentioned CBM's competitors. He is very well aware though that success will ultimately depend on CBM having the right products at the right price.

"The Amiga will surprise a lot of people . . ." But CBM will not attempt to compete in price with cheaper and lesser computers. Yes, he is aware that the Amiga 500 is being sold in his native Denmark at well under the equivalent of £400. That was because, he says, some chain stores wer using it as a "loss leader" to get young people between 13 and 18 into the stores. And, in any case CBM UK had matched the price in the UK with its special coupon offer.

Don't forget the 64

"But nobody should forget the 64! It is No. 1 seller in nearly all products . . . Yet, it will turn into a games machine . . . It always was but now there are thousands and thousands of very good examples . . . I don't see *any* competition!"

As for the Amiga 2000 — "It is the best personal computer in the 16 bit world! . . . But we know it will take some time to go through the dealer to convince the end user . . . Maybe six months and thousands and thousands of hours of training . . ."

Andersen is now number 2 to Harald Speyer, European General Manager. Andersen is responsible for sales, marketing, technical support and logistics. His optimism about CBM's future is forcefully expressed. "There is a certain sparkle in Commodore now . . . You can feel the flame . . ." He has clearly enjoyed his Commodore career — the bad times and the good. He smiles "It's a very, very valuable experience."

Dear Technical Editor.... (THIS MONTH - JACK COHEN)

Dear Technical Editor

I have been using a Commodore 64 with the C2N data recorder for about three years, and on rare occasions the following fault occurs. When LOADing a program from tape the screen remains blank until the end of the tape. I then find that the tape has been wiped clean of all data. I am quite certain that the record button has not been pressed inadvertently at the time, neither is there any strong magnetic field in the vicinity. Both the computer and the recorder appear to be in perfect working order before and after the event.

Is there any part of the program which is capable of switching on the erase head by mistake? Has anyone else noticed this defect?

D.M. Bellis, Lancs.

This is probably due to a storage problem.

Avoid (1) storing tapes near a phone. The ringing tone has been known to erase tapes due to a strong magnetic field which drives the bell.

(2) or near power transformers like those on the 64 supply lead.

The erase head cannot be switched on by mistake because it is only when the keys are depressed that the heads come forward physically into position with the tape and the comparatively weak magnetic field has any effect. Only strong magnetic fields are capable of remote erasure.

Dear Technical Editor

I wrote about a hundred or more long programs for the VIC20 and have now got a 64.

Only a few of the VIC20 programs load on the C64 most of them just give "out a memory error". Although I can't find any common difference between those that load and those that don't.

I expect to correct pokes and screen once I get them to load and these that do then run OK.

Any suggestions please? I can't be the only one with lots of VIC20 programs who now has a 64.

F.J. Wetherell, Kent

The start of basic addresses for VIC20 and 64 are:—

VIC20 (unexpanded)	*$1000*
VIC20 3.5K expansion	*$0400*
VIC20 8K and over	*$1200*
C64	*$0800*

There are timing differences between the VIC20 tape and 64 tape which make direct loading of VIC20 programs into the 64 unreliable as you have found. One solution (if you either have a PET or a friend who does) is to load the VIC programs into the PET, after saving them using the 3.5K expansion if possible, and saving them again to tape. The reason for using the 3.5K expansion is that $0400 is the same address as the PET for the start of basic. If your programs are too large for the 3.5K expansion then the load address will be $1200 (see list above). Then save the programs from the monitor as S "0:VICname",01,1200,x where x= address of end of program +1.

If you have a friend with a disk drive (serial) then direct transfer is possible.

Dear Technical Editor

I was most interested in the article on Forth language for Commodore machines. Could you tell me if 'PLUS4ORTH' would run on a C16+ 64K with 1551 disk drive and if so when will 'PLUS4ORTH' be available?

I am impressed with the improved coverage of CCI in recent months — away from games reviews and toward the more 'serious' aspects as in the above article, keep up the good work.

M.J. Last, Suffolk

P.S. Could you tell me which of the 'Anatomy' books would be relevant to the 1551.

If you are using the Micro Component Trading Co 64K RAM PACK for the C16 then I understand that it is totally software compatible with both the C16 and the PLUS4 so that your PLUS4ORTH will work correctly. PLUS4ORTH will be available in the late Autumn (by the time you read this). If any CCI readers are interested then please write to Richard Hunt c/o CCI. Anatomy of the 1541 would be relevant for the 1551, the major difference is that of speed between the serial 1541 and the faster parallel 1551.

Dear Technical Editor

As a fairly recent newcomer to computing who owns a C64 I find your monthly column in CCI very interesting. It inspired me to buy your book Programming the 64.

At 33 games hold only limited appeal to me and having previously owned a VIC20, and now access to a 8032 PET, 8050 disk drive and 4022 printer I now have a hobby. Your article on converting programs (in the May CCI) interested me as a project I could carry out and enjoy.

I find the sections of your book covering this topic interesting and very useful but have come across one or two snags.

Havng old VIC20 tapes I wish to convert but no disk drive I find myself unable to convert these via the PET to the 64. The PET it seems to me will not respond to either:—

POKE 41,8:POKE 2048,0:NEW (from May 1987 CCI) or POKE 44,4:POKE 1024,0:NEW (from page 595 of your book), where VIC20 tapes are to be loaded. Do you know of any suitable numbers to let the PET convert my programs, until I can obtain a disk drive, and for tape programs.

Using the above numbers the PET searches and finds the program name (on the 64 the name is found in graphics then READY is displayed) loads it and displays READY. But it will not list or run the program. I think the 64 would accept VIC20 tapes via the PET if only I could get the PET to load them, the pet seems more VIC20 compatible than 64 compatible.

Note: I use the 64 data recorder on the PET as you advise in your book. Mine is a replacement Binatone Data Recorder designed for use with VIC20 and 64 computers.

I have many (BASIC) PET programs running on the 64 and some 64 programs run OK on the PET. I fnd that the POKES from CCI May 1987 allow successful 64 into PET while the ones from page 595 don't, is the book correct? Why do these numbers differ or what could be wrong.

When I have the cash for a disk drive VIC20 to 64 should be much easier, but my next project will be can I use PET disks directly in the 64 disc drive. Can backing up or some other method help.

Would it be worth buying a 64 to ieee interface to allow me to directly couple the 64 to the 8050 and 4022. Will my Final Cartridge II be of help to me in any other way than (I hope) taking care of BASIC 4 to BASIC 2 conversion.

Finally having got my project out of my system what would you advise as a good and correct way for someone just above raw beginner to learn computing correctly.

Your book and column have helped open up my hobby, keep up the good work.

Mr. A. Barnes, Co. Durham

You have misread Rae's answer in the May '87 issue of CCI. He gave suitable pokes for programs FROM a 64 loaded into the PET in which case POKE 41,8:POKE 2048:NEW is correct. Suitable pokes for the programs FROM VIC20 loaded into a PET are:—

unexpanded VIC to PET
POKE 41,16:POKE 4096,0:NEW
3.5K expansion
NO POKE NECESSARY — same load address as PET
8K and over
POKE 41,18:POKE 4608,0:NEW

POKE 44,4:POKE1024,0:NEW is not meant to be entered on the PET (unlike the above POKES). You should enter it on the 64 BEFORE loading the 64 program and then save to tape. Then, on the PET POKE 41,8:POKE 2048:NEW then load the 64 program from tape. You can use PET disks with the 64 using an appropriate interface such as those available from BRAINBOX.

Assuming that you want to become proficient in the use of your computer and peripherals, there are three different ways.

Dear Technical Editor.... Continued.....

1. Get appropriate book specific to your computer on a) learning basic, b) learning machine code. There are numerous books for the 64 and I suggest that you look at them first in your computer bookshop for the books that are written for your level.

2. Join a local computer club and mix with enthusiasts (such as ICPUG members).

3. Join a local college course on computing (as near as possible to your 65XX processor — unless you require a general course for exam or other purposes).

Dear Technical Editor
I recently bought 'Mini Office' after reading the good reviews in CCI. However the program is incompatible with my printer even though it is an Epson. The problem is that the software does not send line feeds to the printer. The manual states "Set the switches inside Epson and compatible printers to provide auto line feed". My printer being an Epson MX70 does not have any such dil switch options, this being no problem with my other software which provides sufficient options to line feed correctly. I have tried all the software options such as 'Line spacing' and 'spacing of blank lines', but these have no effect, everything is printed out on the same line.

This omission means that this potentially useful software is virtually useless to me and a waste of £19.95. Can you help me with this problem.
J.A. Tulley, Cheshire

The MX70 was built as a no frills printer alternative to MX80 — meaning essentials like dip switches left. However and line feeds are programmable as you have found. Look at your printer manual and see a) if line feeds are turned on, until reset, by programming or b) if the line feeds have to be sent with each line of the text. If a) then send the appropriate control code before loading Mini-Office and as long as Mini-Office does not react the printer should work. If b) then there is nothing to be done in a practical way without a hardware modification to the printer.

Dear Technical Editor
I am a subscriber to your magazine, and have been following the progress of the Commodore Amiga in the UK since the launch of the machine in this country over a year ago. The release of Wordperfect has to me (and possibly to many others waiting for a top quality wordprocessor) been the deciding factor, and I hope to purchase an Amiga in October or thereabouts. I have still not decided whether to buy the A500 or A2000, as price alone will not be a deciding factor.

However, to cut costs initially at least, I am wondering whether the Amiga can be connected to either of two televisions which I have. The televisions concerned are both Ferguson models, and are both designed for RGB computer input. For ease of reference, I will set out the relevant details below:

1. Thorn EMI Ferguson 51A5 FST Stereo Teletext with TA164 Peritel connector.

2. Thorn EMI Ferguson MC01 Colour Monitor Television with 7 pin RGB input socket and 5 pin Composite Video socket. The second television is a 14 inch model, which I have used with a BBC Model B using the appropriate lead. The resulting display was indistinguishable to my eyes from that obtained from a dedicated monitor.

I realise that my query is perhaps unusual, but I would appreciate your taking some time to ascertain the position, even if it means my having to wait for some time for an answer.
Iain Gillies, Scotland

The type of RGB required for the Amiga mut be RGB (A) with at least one sync. Look in your TV manuals to check if this kind is available to you or ask the manufacturers for their technical information sheets. If you have the correct RGB (A) then the cable to connect the Amiga with your TV will have a scart connector (or Europlug) at the monitor end.

Dear Technical Editor
I want to connect my Commodore 128 RGB interface to my newly acquired television/RGB monitor (Hitachi CPT 1646). Enclosed are descriptions of each interface. I have tried to connect them myself but with little success. If you cannot help me, could you tell me of someone or some company that may be able to.

Printers!?! — So many on the market! Please could you recommend to me some printers that you (or your colleagues) have had pleasure in using; up to about the £200 price range.
Peter Slatter, Hants.

To use the 128 with a monitor requires RGB (I). Again check with your TV manual or technical information sheets.

I suggest the Star NL10 which can be supplied with a built-in CBM interface and is fully CBM compatible, but more importantly, STAR are a well-established concern who have been in business for over 35 years, specialising in electronic typewriters and printers.

Dear Technical Editor
A Mr Colin Stephens of Kingston upon Thames asked if he could read MS-DOS with his C-128.

Recently a program has come out that will allow this. I found it somewhat by accident. Enclosed is a review of this program, as well as where to get it. Hopefully, it will be helpful to Mr. Stephens.

You may pass the enclosed (along with this letter) to Mr Stephens, as perhaps he may have other questions, should he wish to write.

I would suggest that Mr Stephens write the SOGWAP company, giving the name of the word processor whose textfiles he wishes to transfer, (it may be known to us here...) and the version of DOS he is running on his IBM, just to be sure. Also, ask them how much it will cost to mail it overseas, etc.

I transfer text files from MS-DOS at work to this Tandy Radio Shack Model III at home by using a file-transfer program. It works great.

I am considering purchasing an Amiga 500.
Dale Stupfel, California, USA

Dale writes to recommend 'The Big Blue Reader' to Colin Stephens and others. The BBR programs a 1571 disk drive to read and translate MS-DOS files (but not RUN them). BBR will let you transfer WP files to/from IBM PC (or clone) from/to 128 system. (SOGWAP Software, 611 Boccaccio Avenue, Venice CA 90291 USA $29.95 phone (213)/822-1138).

Dear Technical Editor
I would like some help in regard to a listing given in your August edition: "True Descenders" (F. Randall). I have typed it into my 64 but it does not appear to work quite as it should. It prints an Easyscript file on my MPS803, except that it leaves out all the descenders. There are no error messages when I run the program and I have checked my version of the listing a number of times. I am probably missing some obvious error, but in case other have had this problem I have decided to make this query. Also, line 290 looks a bit odd: shouldn't 310 be 290? I enclose a copy of the program that I have typed in; perhaps someone could spot my error. In the event of this program being referred to in your October issue, please ignore this letter.
Maurice Neligan, Surrey

The original listing of line 290 was incorrect and should finish 'then 290' as in your listing.
However you have entered line 1080 wrongly.

In fact, line 1090 appears twice in your listing once as line 1080 and once correctly as line 1090.

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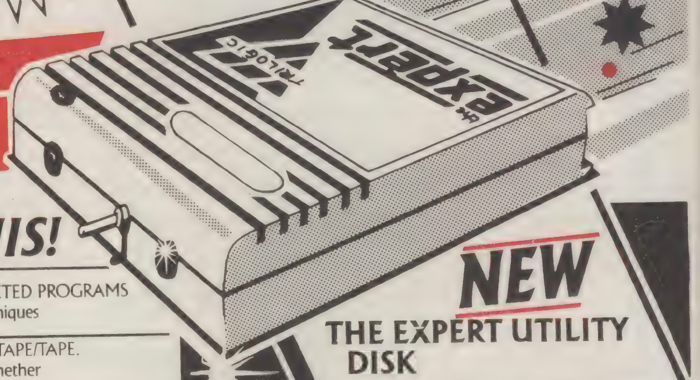

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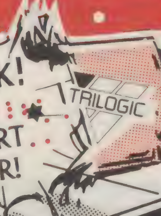

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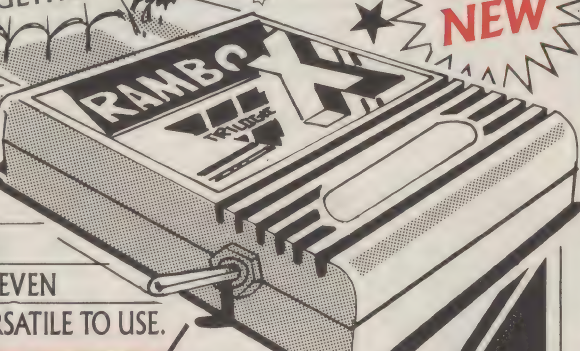

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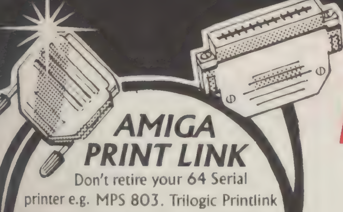

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A Layman's Burst Mode Guide

by M. Garamszeghy

The 1571 disk drive is proving its popularity all over the world. Yet most people fail to use all its remarkable capability. Often the Burst Mode seems mysterious and somewhat daunting. Mike Garamszeghy is a Canadian expert on many aspects of things Commodore. He has written a four part series that will explain how to master this interesting and useful mode.

Part 2: Burst Read

In part 1 of this series on the 1571 burst mode *(TPUG Magazine, Issue 23),* we examined the various burst mode commands and how to access them. This month we shall cover the basics of the burst read data transfer protocol.

Burst mode data transfer is very fast, up to 380 bps (bytes per second). This is considerably faster than the normal 1571 'fast' mode of about 1600 bps and the 1541 (or 1571 slow mode) rate of about 350 bps. (When you take into account the 'overhead', such as disk initialization, track to track jump time and sector seeking time, the average burst mode speed is about 2200 bps, while the average value for 1571 fast mode is about 1100 bps). During normal data transfers (i.e. using **print#, get#, load, save**) between a C-128 and a 1571 or 1541 drive; a significant amount of time is taken up by the convoluted Kernel routines that must be followed for each byte to be sent.

Burst mode eliminates some of the inefficience by sending data in blocks (up to 1k bytes long) based on a much simpler, and therefore much faster, hardware handshake. Data are exchanged directly between the 1571 and the data register of the Complex Interface Adaptor #1 chip (CIA 1), based on a simple signal from the normal serial bus controller (on the CIA 2).

There are four simple steps to performing a burst mode read operation. These are:

- Send the appropriate command string to access a burst mode read;
- Initialize the CIA chips;
- Read the data;
- Restore the default I/O devices.

The first step can be performed by either machine language or BASIC statements. A typical BASIC statement may be as follows:

```
open15,8,15,"u0"+chr$(10)
```

This particular example will ask the 1571 to use the *Query Disk Format* command to analyse the format of side 0, track 0 of a disk. The equivalent in simplified ML (machine language) would look like:

```
ldx  #$00
stx  #ff00
lda  #$0f
ldx  #$08
ldy  #$0f
jsr  $ffba   ;setlfs
lda  #$00
jsr  #ffbd   ;setnam
jsr  #ffc0   ;open
ldx  #$0f
jsr  $ffc9   ;chkout
lda  #$SS
jsr  $ffd2   ;chrout
lda  #$30
jsr  $ffd2   ;chrout
lda  $#0a
jsr  $ffd2   ;chrout
jsr  $ffcc   ;clrchn
```

The first two instructions are the ML equivalent of BASIC's **bank 15** statement. This instruction should be used in ML whenever you want to call Kernal routines because they are all located in BANK 15. The Kernal jump table addresses are all the same as other Commodore computers. (The C-128 also has several new Kernal routines, only one of which is of interest for burst mode. The Spin/Spout routine, which is used for burst writes, will be discussed in the next installment.) The bank switching is handled automatically by the **open** statement in BASIC. If there is a possibility that the disk drive connected to the C-128 is not a 1571 or that the 1571 has been set to 1541 mode, you can test bit 6 of the *fast serial flag* (RAM location $0a1c, decimal 2588). If this bit is set after an **open** operation (in either BASIC or ML), then the drive is a *fast* device (i.e. a 1571 in fast mode).

The second step is to initialize the interrupt register of CIA 1 and to tell the serial bus that you are ready to receive data. It is easiest to do this with machine language:

```
sei
bit  $dc0d
lda  $dd00
eor  #$10
sta  $dd00
```

If this procedure is being called as a subroutine, from either BASIC or ML, then you will need to add an **rts** after the last instruction to return to the calling program. The first instruction disables the normal processor interrupts, such as keyboard scanning. This has the effect of increasing the amount of time that the hardware can dedicate to data transfer and eliminating the trapping of keyboard presses which may cause errors during data transfers. The bit instruction is used to reset the Interrupt Control Register (ICR) of CIA 1. The final three instructions toggle the state of the Acknowledge and Ready For Data (ARFD) line, which is used as a clock during the burst transfer. This is a signal to the system that we are ready to receive data.

The third step is to read the burst data. The basic subroutine for reading burst data bytes is quite simple:

```
      lda   #$00
wait  bit   $dc0d
      beq   wait
      lda   $dd00
      eor   #$10
      sta   $dd00
      lda   $dc0c
      rts
```

The first three instructions create a wait loop until bit 3 of CIA 1 is ICR is turned on. This condition indicates that a byte is ready to be received. The next three instructions toggle the state of the ARFD line, causing a data byte to be transferred. The final two instructions read the data byte from the CIA 1 data register and return to the calling program. To store this byte, an indexed **sta** instruction similar to:

```
sta ($fa) ,y
```

is normally used (assuming zero page locations $fa and $fb contain the low and high bytes respectively of the data buffer, and the y register used as an index). The read subroutine is often called from an indexed loop, especially when reading blocks of data. It is important that you keep track of the number of bytes transferred and that your indexing method can handle the number of bytes involved. A summary of annotated assembly language routines needed to read each of the burst mode commands is given in Table 1. These routines can be entered directly on the C-128 with its built in monitor by replacing the labels (e.g. wait, next) with absolute addresses.

The most convenient location for the ML is the cassette and RS232 buffers beginning at $0b00 (decimal 2816). The combined buffer space gives you 768 bytes for ML. (Remember that the number of bytes transferred for a sector read is 1 + the number of bytes per sector. MFM format disks may have sector sizes of 128, 256, 512, or 1024 bytes per sector. *Fast load* GCR sectors have 254 bytes per sector. The number of bytes transferred for other burst mode commands depends on the command. See Part 1 of the burst mode article for a complete description of each command.) In order to use the I/O and Kernal routines, the C-128 must be set for bank 15. Unfortunately, this also limits the maximum size of a data buffer to 8k bytes (bank 0 RAM below $4000 is visible in bank 15 also.) This limitation can be overcome by playing with the Memory Management Unit (MMU) configuration register ($ff00 — all banks) to switch between bank 0 and bank 15 on the fly. Your machine code must be in an area visible to both banks (i.e. below $4000, in a location such as the cassette buffer) for this method to work. The indexed **sta** instruction mentioned above should be replaced with:

```
ldx    #$3f
stx    $ff00
sta    ($fa),y
ldx    #$00
stx    $ff00
```

The first two instructions set the C-128 to bank 0. The data byte is then stored in the correct bank 0 location. The last two instructions switch back to bank 15. This simple technique allows you to use about 60k of bank 0 as a data buffer. There is no need to protect the unused RAM in bank 0 from being overwritten by variables (they are in bank 1), but don't forget to start your buffer above any ML or BASIC program that may be occupying bank 0.

The final step, after all of the data have been transferred, processed, and stored, is to close the disk channel and restore the default I/O. In ML, this is done with:

```
cli
jsr    $ffcc   ;clrchn
```

It is very important to include the **cli** instruction. This re-enables the processor interrupts that were turned off by the initial **sei** instruction in step 2.

That, in a nutshell, is how to read data in burst mode. You will see that the longer the file, the greater the advantage of burst mode. The machine language portion is poked into the cassette buffer beginning at RAM address $0b00 (decimal 2816). One final note about burst fast load. I have found by experience that the only way to get consistent performance from this command is to append the DOS wild card character to the end of the filename. I suspect that the somewhat quirky (what else is new?) 1571 operating system expects t have a full 16 character filename (i.e. padded with shifted spaces) for the burst fast load when it searches the directory for your file. Using the DOS wild card eliminates this problem. Fortunately, fast load is the only burst command which uses a filename. In the next installment, we shall examine burst mode writing.

TABLE 1: SUMMARY OF ASSEMBLY LANGUAGE BURST MODE READ ROUTINES

General read-a-burst-byte routine (used by all subroutines below)

```
    read1: lda #$08
     wait: bit $dc0d
           beq wait    ;wait for bit 3 of CIA#1 ICR
    read2: lda $dd00
           eor #$10    ;toggle clock
           sta $dd00
           lda $dc0c   ;get data byte
           rts
```

NOTE: Before using any of the following routines, you must load zero page locations $fa and $fb with the low and high bytes of the start of your data buffer and call the appropriate burst mode command.

Single byte read:
(used for INQUIRE DISK,
INQUIRE STATUS and
read SECTOR INTERLEAVE)

```
   ldy #$00      ;reset pointer
   sei           ;disable interupts
   bit $dcod     ;clear CIA#1 ICR
   jsr read2     ;signal when ready
   jsr read1     ;read byte
   sta ($fa),y   ;store byte
   cli           ;restore interupts
   jsr $ffcc     ;clear I/O channels
   rts
```

Multi byte read for
QUERY DISK FORMAT:

```
        ldy #$00
        sei
        bit $dc0d
        jsr read2
        jsr read1
        jsr store
        cmp #$02
        bcc exit  ;GCR disk
        and #$0e
        cmp #$00
        bne exit  ;MFM error
        jsr read1 ;Read another status byte
        jsr store
        and #$0e
        cmp #$00
        bne exit  ;MFM rror
        jsr read1 ;# sectors/track
        jsr store
        jsr read1 ;# logical track found
        jsr store
        jsr read1 ;minimum sector # found
        jsr store
```

```
       jsr read1 ;maximum sector # found
       jsr store
       jsr read1 ;cp/m interleave
       jsr store
 exit: cli
       jsr $ffcc
       rts
store: sta ($fa),y ;store byte
       iny         ;increment pointer
       rts
```

Read N sectors of data:

128 byte MFM sectors:

```
      ldx #number of sectors
      stx $fc
      ldx #00     ;#sectors read
      stx $fd
      sei
      bit $dc0d
      jsr read2
next2:ldy #$00
      jsr read1   ;read status byte
      and #$0e
      cmp #$00
      bne end     ;end if error
next1:jsr read1
      ldx #$3f    ;goto bank 0
      stx $ff00
      sta ($fa),y
      ldx #$00    ;goto bank 15
      stx $ff00
      iny
      cmp #$80    ;end of sector?
      bne next1   ;get next byte
      ldx $fd
      inx
      cpx $fc     ;last sector?
      beq end
      stx $fd
      tya
      clc
      adc #$80    ;inc pntr 128 bytes
      bcc next2   ;read next sector
      inc $fb
      jmp next2
  end:cli
      jsr ffcc
      rts
```

256 byte GCR or 256*n byte MFM sectors:

```
      ldx #number of sectors
      stx $fc
      ldx #$00
      stx $td
      ldx #sector size/256
      stx $fe
      stx $ff
      sei
      ldy #$00
      bit $dc0d
      jsr read2
next2:jsr read1
      and #$0e
      cmp #$00
      bne end        ;end if error
next1:jsr read1
      ldx #$3f
      stx $ff00
      sta ($fa),y
      ldx #$00
      stx $ff00
      iny
      cpy #00
      bne next1
      ldx $fe
      dex
      stx $fe
      inc $fb
      cpx #00     ;end of sector?
      ldx $ff
      stx $fe
      bne next1
      ldx $fd
      inx
      cpx $fc     ;last sector?
      bne next2
 end: cli
      jsr $ffcc
      rts
```

FAST LOAD entire file (254 byte GCR sectors):

```
      sei
      bit $DC0C
      jsr read2
next2:jsr read1
      sta $fc
      cmp #$02
      bcs last    ;last sector in file
      ldy #$00
next: jsr read1
      ldx #$3f
      stx $ff00
      sta ($fa),y
      ldx #$00
      stx $ff00
      iny
      cpy #$fe    ;only 254 data bytes
      bne next
      tya
      clc
      adc $fa
      sta $fa
      bcc next2
      inc $fb
      jmp next2
last: jsr read1   ;get # bytes in last
      sta $fc
      ldy #$00
next3:jsr read1
      ldx #$3f
      stx $ff00
      sta ($fa),y
      ldx #$00
      stx $ff00
      iny
      cpy $fc     ;last byte?
      bne next3
      cli
      jsr $ffcc
      rts
```

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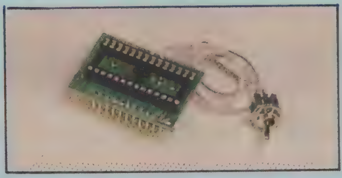

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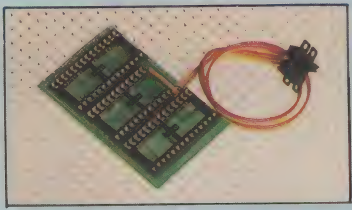

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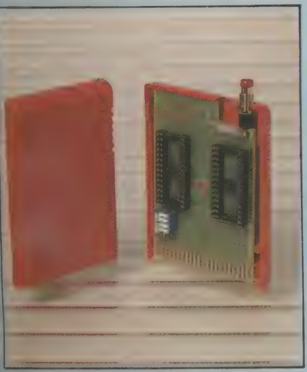

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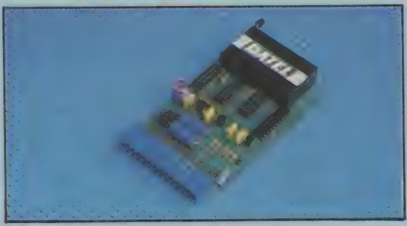

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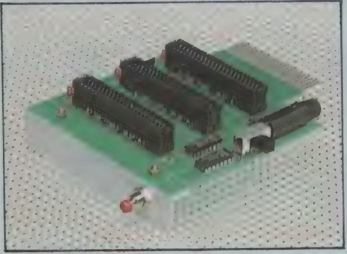

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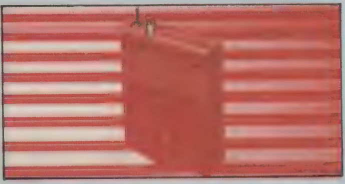

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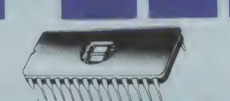

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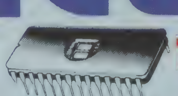

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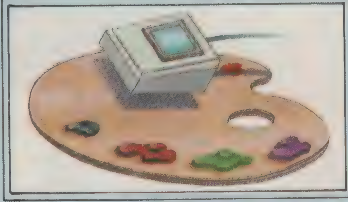

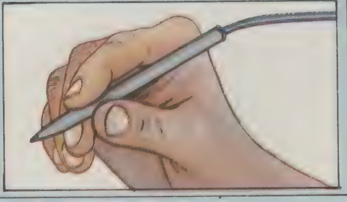

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  - ● Range of brushes ● Airbrush ● Rectangle ● Circle ● Rubberbanding ● Lines ● Freehand ● Zoom mode ● Printer dump ● Load/save ● Advanced colour mixing – over 200 hues!! ● Cut and paste allows shapes/windows/pictures to be saved to/from tape/disk.
- ☐ Blazing Paddles will also work with many other input devices including; Joysticks, Mice, Graphics Tablets, Trackball etc.
- ☐ Pictures can be saved from Action Replay and edited with Blazing Paddles.

Complete Blazing Paddles & Lightpen **ONLY £24.99**

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- ☐ Turn your Smart Cart into a 32K RAM/disk.
- ☐ 32K of instant storage area for files/programs.
- ☐ Load/save instantly.
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- ☐ Plus a full machine code monitor – too many features to list but it has them all!
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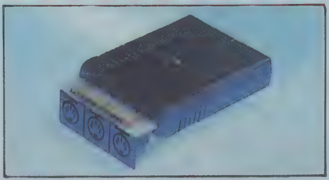

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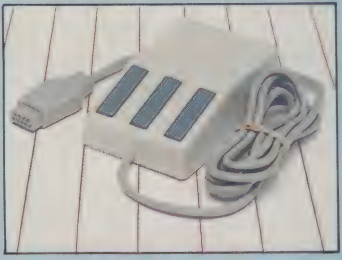

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- ☐ CBM 64/128 mouse.
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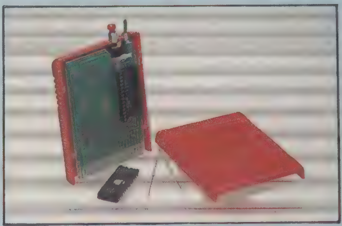

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REPORT ON FINDINGS

Action Replay Mk III is more powerful, more friendly and will back up more programs than any competing utility by taking a 'Snapshot' of the program in memory so it doesn't matter how it was loaded... from disk or tape, at normal or turbo speeds... the results are the same – **Perfect!! Amazing!!!**

STARBASE UPDATE

- Simple to use: just press the button and make a complete backup: Tape to Tape, Tape to Disk, Disk to Disk, Disk to Tape. – THE PROCESS IS AUTOMATIC – JUST GIVE THE BACKUP A NAME.
- All backups will reload at turbo speed independently of the cartridge.
- Dual speed tape turbo system. Programs can load up to 3 times faster than commercial turbos – that's over 10 times normal Commodore speed.
- Freeze the action then view the program with the monitor feature. Add pokes for infinite lives etc. Then restart the game or backup – ideal for customised versions of your games.
- Picture Save. Save any multi-colour, Hires screen to disk or tape. Compatible with Blazing Paddles, Koala, Slideshow etc.
- Fully compatible with 1541, 1541C, 1570, 1571, and ehancer or any CBM compatible data recorder.
- For C64, 64C, 128, 128D (in 64 mode).
- Unique Sprite Monitor. Freeze the Action and view all the Sprites, watch the animations scroll across the screen. Save Sprites to disk or tape. Customise your games by loading sprites from one game to another – then restart the program or make a backup.
- Compatible with fast DOS and Turbo ROM systems.
- Backup process in turbo speed – faster than any rivals.
- Special compacting techniques. Each program is saved as a single file.
- Transfers multistage tape programs to disk – more than any other cartridge – even the extra stages are turbo load – a unique feature.
- Sprite Killer! make yourself indestructible by disabling Sprite collisions in games.
- Fast disk format (20 secs).
- Built-in unstoppable reset button.

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PLUS Built In

FASTLOADER

Action Replay III even has a built in disk fast loader which speeds up loading 5 times. Uses no memory – invisible to the system. You could pay £20 alone for this feature.

WARP 25

BREAKS THROUGH THE 10 SECOND BARRIER!

Action Replay III now comes with an amazing new Disk Bootloader that will reload your backups at TWENTY FIVE TIMES normal speed. The fastest disk turbo yet devised!! There are NO CATCHES. 'WARP'25 works with ALL your games. Works with any disk drive. No preload required – No hardware modifications necessary – No user knowledge required – programs load INDEPENDENTLY. LOADING TIME – 9.8 SECONDS (for a typical game saved by WARP*25 in conjunction with ACTION REPLAY III). This time is for the COMPLETE load process from start to finish. Reload is entirely INDEPENDENT of the cartridge or any other hardware.

Compare these (accurate!) figures for some rival backup systems:

SYSTEM	LOAD TIME	PROGRAMS PER DISK	CARTRIDGE REQUIRED?
ACTION REPLAY MK III SAVED WITH NORMAL TURBO	25 SECS	THREE	NO
ACTION REPLAY MK III SAVED WITH WARP * 25	9.8 SECS	THREE	NO
FREEZE FRAME (MK IV)	40 SECS	TWO OR THREE	NO
FREEZE FRAME (LAZER)	25 SECS	TWO	YES
EXPERT SYSTEM	30 SECS	THREE	NO

All purchasers of Action Replay III will receive WARP*25 FREE with their cartridge. Existing Action Replay III owners can obtain WARP*25 Disk turbo by sending £2.50. post free. (No need to send your cartridge). OR obtain it FREE on the Enhancement Disk (£7.95).

THE ACTION REPLAY ENHANCEMENT DISK

The best collection of tape to disk transfer routines for nonstandard multiload programs (eg Dragons Lair I and II, Championship Wrestling, Summer Games, Ace of Aces, Gauntlet, Supercycle, Marble Madness, World Games). 31 titles in all. Uses our unique parameter system. No user knowledge required. Turboload throughout. NOTE: Standard cartridge transfers normal multiloaders eg Winter Games etc. etc. Disk includes file copy and disk backup utilities.

PRICE £7.95 with FREE! Multicolour Slideshow for display of loading screens, hires pictures etc. saved by Action Replay. Great entertainment'

PERFORMANCE GUARANTEE

100% Success? Rival Claims? Who's Kidding Who?

Action Replay Mk III will backup any program which any other cartridge can backup – and more! It also has an unmatchable range of features. Consider 'Freeze-Frame' for example, which uses more disk space, saves at slower speed, has slower tape loader, has no built in disk fastloader, no picture, Sprite or restart features and costs £10 more than Action Replay. So who's kidding who? Buy Action Replay Mk III. If you find that it does not live up to our claims return it within 7 days of receipt and your money will be refunded.

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COMPUNET TAKES THE AMIGA ONLINE!

Jonathan Littlewood takes a look at Compunet's latest development

At the PCW Show, held recently at Olympia, Compunet announced that access to the on-line database, once the preserve of Commodore C64 and C128 owners only, was to be made available to Amiga owners. Although not ready until later in the year the Compunet 'front-end' software for the Amiga was n show in a demonstration form. Despite being unfinished it was plain that this is an impressive piece of software.

The Amiga needs special software to communicate with Compunet because the online database uses its own protocols and screen formats. Unlike virtually all other systems of its kind Compunet uses an error-correcting protocol for all messages between the host and user's computer. This means that if the telephone line is noisy the Compunet software will detect any corrupted bytes and resend them. While the system may slow down on a noisy line as it resending blocks of screen data, the result is always a perfect screen. Indeed in two years of using Compunet I have yet to see a corrupted screen due to line noise — more than I can say for any other on-line service I use.

As Compunent was originally intended for the C64 it uses that machine's character set, including all the graphics symbols. The Compunet software for the Amiga must therefore handle the special Compunet protocol and emulate the C64 screen. The programmers responsible for the Amiga software have expressed some unhappiness about emulating an eigt bit machine's display on such a powerful graphics engine!

The Amiga version is far superior to the C64 software. Full use has been made of the Amiga's multi-tasking and windowing capabilities, so that for example a user can prepare a word-processor document in one window while another shows the status of a demo program being simultaneously downloaded from Compunet.

Using the Amiga's eighty column display two Compunet frames can be shown side by side, allowing the last directory to be kept on screen while reading the contents of one of its frames. Gone is the famous Compunet 'duckshoot' menu, which scrolls across the bottom of the screen on the C64, instead Intuition's drop-down menus and gadgets have been used.

The Amiga 'front-end' software is fully compatible with all existing Compunet frame types. This extends to allowing the Amiga to download C64 programs, though obviously they cannot be run without transfer to the eight bit machine. Amiga owners will have one facility, not available to their eight bit brethren — the ability to up and download screens in the Amiga's own higher resolution formats. Apparently a full 4096 colours will be available using 'Hold And Modify'.

Within days of Compunet's announcement of its availability to Amiga owners the first Amiga Demo was uploaded — via a Commodore 64. The database already has a lot of users interested in the Amiga. The Amiga User's Group, for example, has been running an excellent area for some time. Other areas include ICPUG's 'Amiga Forum' and the 'Amiga Corner'. An Amiga 'Buddies' section started recently in Amiga Corner, already has over fifty Amiga owners in contact with each other.

The Compunet 'front-end' software for the Amiga will be made available on disk for £25 at the beginning of December. Users with XMODEM or Kermit software will be able to download it at a five pound saving. The software will work with any Hayes compatible V23 modem and Compunet are considering providing access at speeds other than the current 1200/75 split baud rate.

J.L.

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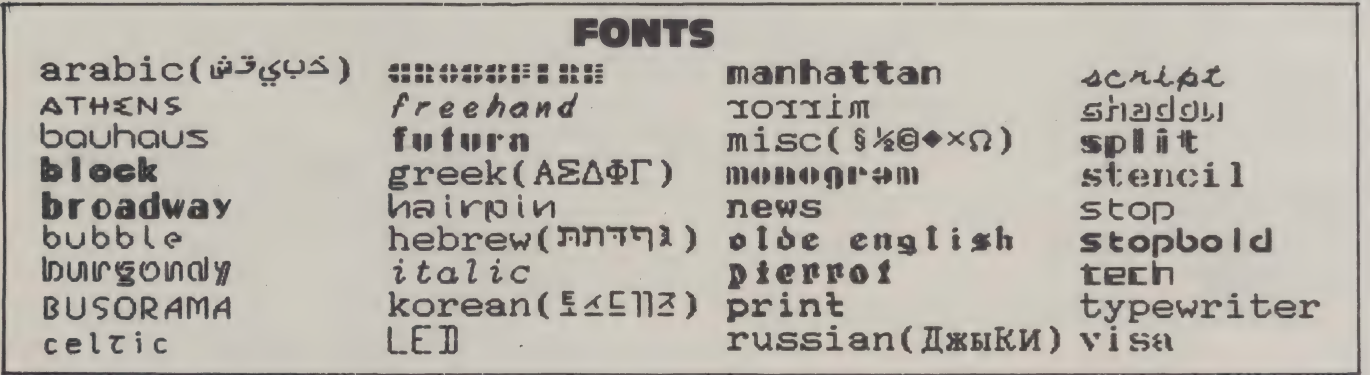
Word Processing System for the 128

There are very many good and indeed excellent word processors available on the market today for the 128. Some cheap, most expensive, but on the whole like everything else, you get what you pay for. £50.00 will buy you FONTMASTER 128. Not just a decent product, but one which brings you everything from a "state of the art" w/p system. In fact there are so many features that I haven't anywhere near the space to give them all credit. For the serious minded 128 user who wants everything here it is.

A well written manual is for me the key to easy understanding in any new subject. There is a beautifully documented 110 page users guide.



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The writer of the program was also responsible for writing the manual... both excellent! No time wasting thumbing backwards and forwards through page after page of instructions because with this you're led gently and comfortably step by step in the most logical sequence through the learning process.

The disks supplied (there are three) have no copy protection and you're encouraged to make backup copies. A file exists especially for this purpose. The two operating disks may be backed up onto one double side disk if you have a 1571. Along with the package comes a Clip Art disk containing over 100 graphic images for use in text if needed. The usual signs and animal shapes etc. are all there. A hardware protection key is the device that allows you work with FONTMASTER 128 and without it you don't produce anything. This is easily plugged into the cassette port.

FONTMASTER 128 has a really good system set up that enables you to get the best from your printer/interface combination. I personally have a Citizen MSP10E dot matrix printer which runs through a Uniprint interface. As you might think this could be quite difficult to access all the capabilities of the Citizen... but no!... The set up menu has over 100 printers to choose from along with sixteen or so interfaces all of which can be customised if your particular interface isn't included.

Once your configuration is saved, along with personal preference of screen colours, each time you auto-boot the program your set up is automatically chosen. The working screen hs a neat help area at the top showing the current font (typeface) you are using, indicators showing which modifiers are in use, column and line number, memory used etc. The comprehensive display also changes when different functions are called upon such as handling disk/font commands.

45 Fonts

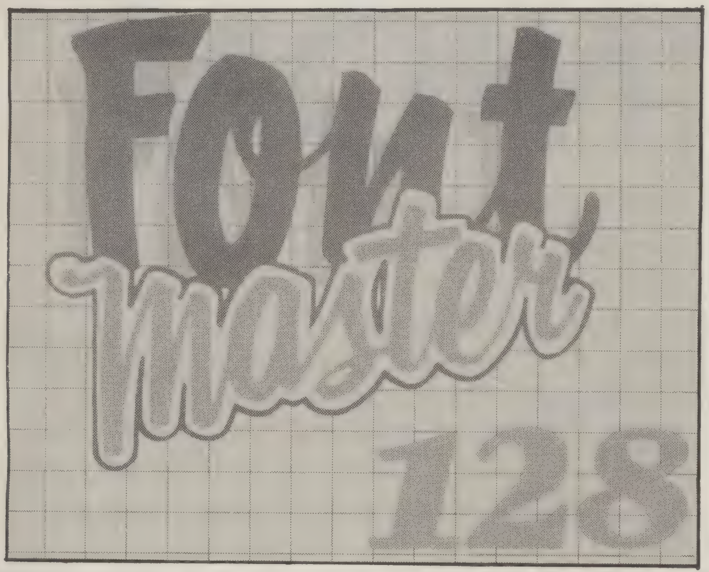
There are over 65 powerful commands at your disposal to help produce a work of art. Over 45 different fonts including Russian, Greek, Hebrew, Arabic and Inuktitut. Not that I shall ever get to use them but it's nice to tell your friends! Together these make 55 fonts (any combination of 9 can be installed in a document at a time). Another set to mention are decorative borders, 42 types to take your fancy. A character set generator is included (of course) as if the choice wasn't enough! Every font can be modified, in fact there are no more than 20 ways to change each font i.e. underline, italics etc... This makes possible 900 different combinations. Enough, I think, to impress almost anyone.

All the cursor movement around the text screen is simple enough to grasp along with the editing controls. Block move, copy and delete. Cut and paste, find and replace are all a joy to use.

When starting out Demo files help show how on screen modifiers and formatters are put to use. They show what happens if you use such things as expanded or compressed type, 4 different pitches, bold face or italics, inverse or underline, subscript or superscript or how about overlapping one character over another to give unique symbols!

Type can be formatted to suit whatever page layout you wish. It is possible to present your copy into columns just as in this article. Normal word wrap will give a smooth left sided column or justification will produce smooth aligned edges to bth left and right sides. Lines can be centred on page or even made to be produced in mirror image! (That'll come in very handy when I master the use of Arabic!).

Everything possible is adjustable to suit your preference. Individual letter spacing or line spacings are



possible. Page headers and footers can be formatted to give automatic numbering both decimal and (you guessed it) roman numeral. This makes FONTMASTER 128 comparable to most commercial typesetting systems around today.

Graphic images can be converted for use in text. The Clip Art disk as mentioned before has many individual images that can be combined into or even onto your text. Now you wouldn't be surprised if I told you it's possible to use these images in negative form would you... Well you can.

Video Display

One really beautiful thing that this system has is a video display of your text as it will appear on paper. That is to say all the beautiful typefaces and attributes appear, as they will on paper, but onto your screen. A real saving on paper and a chance to edit your document before committing to paper.

I am so impressed with this word processor that I can't wait for the finishing touch due to appear soon... a 72,000 word spell checker. There isn't one bad thing I can say about FONTMASTER.

This package won the Best Innovative Software Award at the Chicago Consumer Electronics Show last June.

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B.C.

Contact: BYTES and PIECES, 37 Cecil Street, Lytham, Lancashire FY8 5NN. Tel: (0253) 734330.

VALUECALC

A spreadsheet — Probably the single most used type of computer program in the world. And with good reason — the ability to work out a large number of tedious calculations all at once can be a terrific boon, not only to accountants but also to builders, engineers, advertising agencies, publishers . . . The list is endless.

Published in the United States by Melody Hall in 1985, ValueCalc has just been released in the UK at £9.99. At that price, it is within the budget of most users. But is it any good?

Before going into the merits and demerits of ValueCalc, it is probably worth recapping briefly on what a spreadsheet is and how it works:

Think of a huge sheet of paper ruled into a number of rows and columns. Information — words, numbers or formulae — can be entered into any of the boxes formed by the intersection of a row and a column. An electronic spreadsheet does exactly the same except that any calculations are carried out automatically. For example, the cost price of a range of items might be entered into one column, the cost of sales into the next and the selling price into a third. An electronic spreadsheet, properly formatted, could arrange for the profit margin to be entered into a fourth column and for the four columns to be totalled without any further entries being made.

Electronic spreadsheets really start to become useful when they are used to perform "what if?" calculations. In the above example, you could see in seconds what effect on overall profit would be made if the cost of sales were reduced by a given percentage. To do this manually would be a lengthy procedure.

Two Math Functions

So — what does ValueCalc actually do? Well, it offers a matrix 64 rows deep by 64 columns wide. The width of the columns can be set to any value between 4 and 36 characters. Formula cells can refer to other (numeric or formula) cells in their calculations. Ranges (i.e. rectangular blocks of cells) can be copied from one part of the spreadsheet to another — either with absolute or relative values. (Relative copying means, for example, that if cell C6 contained the formula C5 x C4 – C1 and it was copied to cell D6, then D6 would contain the formula D5 x D4 – D1. This can obviously save a lot of entering.) ValueCalc has two mathematical functions which can be used in formula cells; these are the sum of a range and the average of a range.

Spreadsheets can be saved to and reloaded from disk or they can be printed out on a Commodore printer.

The package includes three fairly straightforward sample spreadsheets — a car mileage calculator, an expenses record and a home budget manager. None of these is much use in itself but they do serve as examples for anyone learning the system. There is also an eight-page users' manual to guide you around.

Even bearing in mind that ValueCalc is a low budget item, I feel that it really is too primitive to be worth spending money on. If one were to use this product as it is presumably intended, frustration at its limitations would probably very soon set in. There are other products around which offers a great deal more sophistication at very little additional cost.

T.L.

Contact: Electric Distribution, 8 Green Street, Willingham, Cambridge CB4 5JA. Tel: (0954) 61258.

OPINION

Jeff Minter is on holiday so Zack Skinner is stepping into his shoes and taking just the opposite view.

Should I ask what's wrong with you or should I ask what's wrong with the companies that make the games you play? It may be my subjective impression but I think that games are getting more and more violent and there are many more of them. Or at least more of them simulating greater violence.

Oh yes, I know all the arguments about games only reflecting the violence that's already in society. That is the sort of weak reaction that is trotted out about football hooliganism but that isn't much consolation to somebody who doesn't go near a football match but has the bad luck to live near some football club's ground. And it can't be much of a consolation to the families and friends of the people who were shot down by the homicidal maniac Michael Ryan in Hungerford a short time ago. Society may be getting more violent but it might be reflecting what each of us thinks or does too, not only the other way round. And playing computer games may not be any more anti-social than any other sport or pastime but its going to have at least a subconscious effect on people who take part in it especially day after day as most of us do. I think the effect must be dehumanising. Take a look at the charts. Last Ninja, Barbarian, Death Wish, Exolon, Living Daylights, Renegade, Megapocalypse, even Gauntlet still up there after months, it seems like that when a software company doesn't know what to do to earn some quick cash it says to its programmers "Shoot something!"

Jeff Minter who usually has this page is, of course, an avid fan of the kill anything style. He writes great games like that too. But when he complains, as he did last month, that the Americans are going soft because they aren't creating terrific shoot 'em ups as they did before. I hope he is a voice crying in the wilderness. As a games reviewer I'm well aware of the attraction of the easy satisfaction you get from exercising your trigger finger, your fastest reflexes whether its blowing apart dangerous aliens or simply kicking muggers to pieces, Renegade style. Yes, I know that the games houses say that these are not real people on the screen just electronic blobs. I also know that someone said that you couldn't send a girl on a mule one mile safely alone in the Middle Ages. So what? Because medieval society wasn't safe is it necessary for us to encourage people to think that violence is natural a part of everyday life in the present too?

If violent films and TV are not thought good for the impressionable — and let's face it we are **all** impressionable — why should simulated violence on the computer screen be all right? Okay, at the moment, it may be that the killing looks like it's taking place among matchstick-style coloured electronic drawings but it's not going to be long — there's something in last CCI on CD Video which will bring arcade quality games and better onto **your** screen soon — before what you blow apart will look like the movies in its computer-created reality. And then are we going on needing our daily fix of Clockwork Orange style personal mayhem? Are the games houses going to say it doesn't matter because it isn't really real?

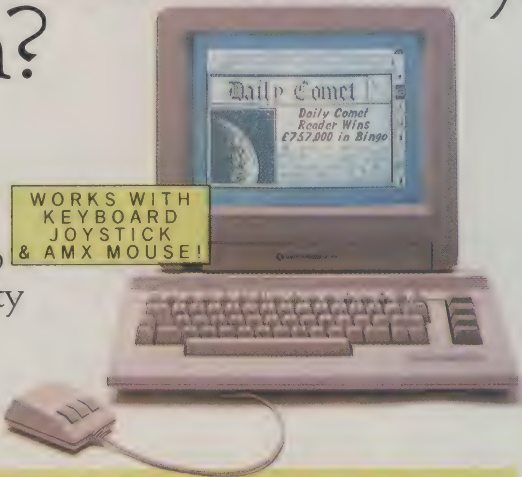
There is some credit to be given to games manufacturers who take another tack. The World Leaderboards and Marble Madnesses can provide just as much entertainment. I have to confess that those are the things that I stick to reviewing. There's just as much challenge in them and they last longer in my opinion. But whenever I mention this to some people though they just say "Boring" and turn their noses up. It seems to me that they are like the kids who sniff glue — anything for a quick thrill. They've not got much more sense than them either. They just want mindless and superficial "fun". Well, there's nothing wrong with having fun but if it has only to take the form of bodies being blown apart, heads rolling across the ground and nothing but pumping bullets at something then, then it's a pretty poor lookout for the rest of us when those people get into situations of real conflict.

Most people like that are kids of around 13 or 14, maybe they might grow out of it. But what about the people who run the companies that give them that stuff? What goes on in their heads? Or does the fact that they make a mint mean they make sure they don't care?

At least in places like the U.S.A. and Germany, those sort of games are either thought to be cheap and nasty and don't get a big reception or actually banned. Football hooligans ... violence in the streets ... TV and films ... blasting your enemies off the screen . . . no, of course there's no proof to connect them but I think you'd have to be blind not to see that there is a connection, and that we'd better start thinking about it now before it gets too late.

Z.M.S.

Stop Press! What's so special about The Amiga, The Mac, The Atari St., Windows and Gem?



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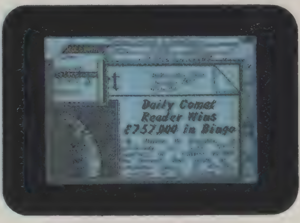

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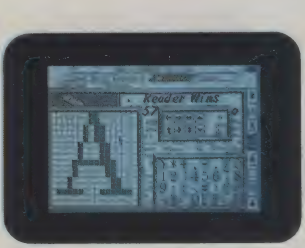

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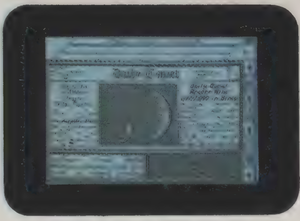

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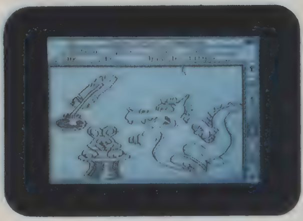

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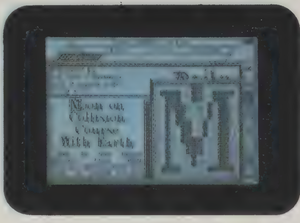

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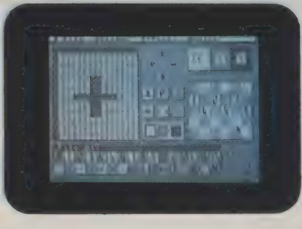

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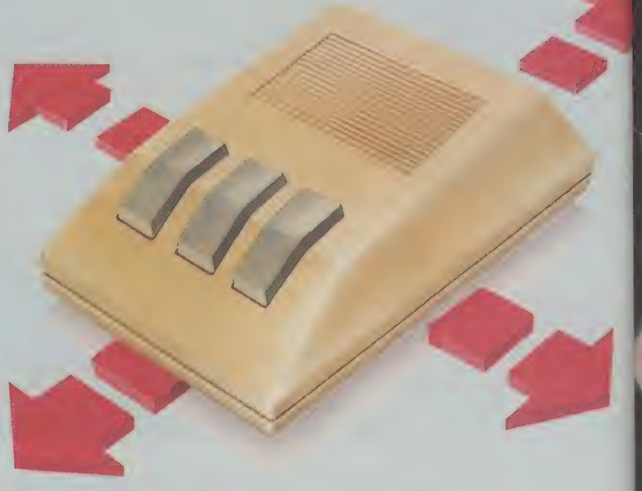

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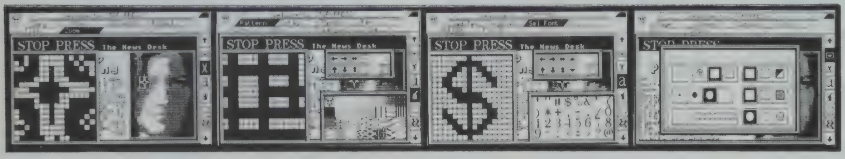

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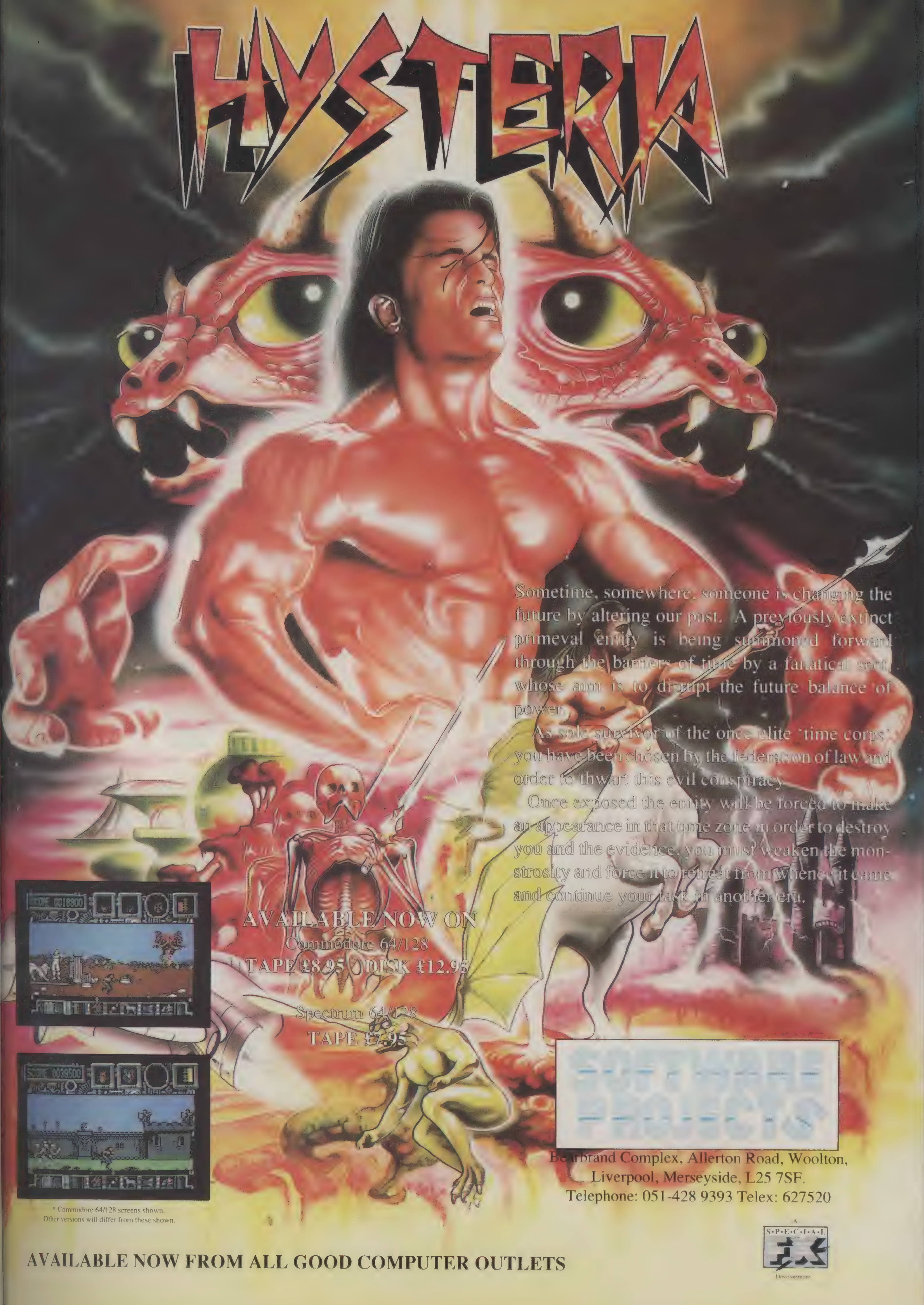

HYSTERIA

Sometime, somewhere, someone is changing the future by altering our past. A previously extinct primeval entity is being summoned forward through the barriers of time by a fanatical sect, whose aim is to disrupt the future balance of power.

As sole survivor of the once elite 'time corps' you have been chosen by the federation of law and order to thwart this evil conspiracy.

Once exposed the entity will be forced to make an appearance in that time zone in order to destroy you and the evidence, you must weaken the monstrosity and force it to retreat from whence it came and continue your task in another era.

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Hysteria

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Hyst

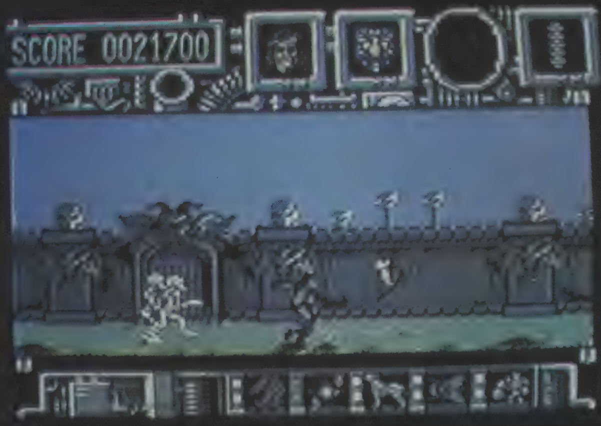
Hysteria, according to the dictionary, is "A nervous disorder of women, occurring in paroxysms, and often simulating other diseases''. This is quite a good description of the game from Software Projects of the same name.

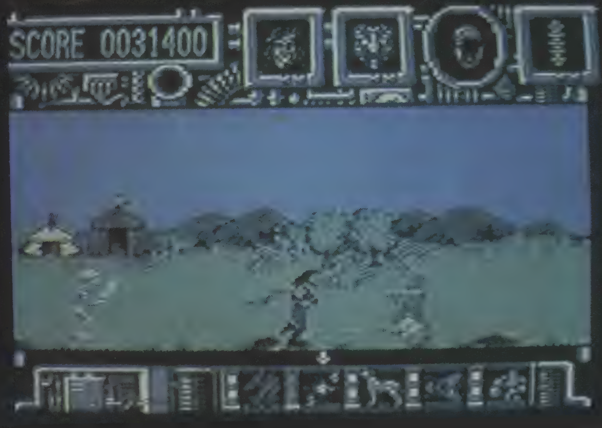
In this, the latest and in my view, greatest game to come from Software Projects, you take the part of a topless muscle-bound hero, the sole survivor of the once elite 'Time Corps'. Members of a mad fanatical sect are dragging a previously extinct entity through time in an attempt to sieze power. Being the butchest good guy around, you have been chosen to avert this potential catastrophe.

You start your journey through time in ancient Greece. As you would expect, between you and your goal are loads of hero-hating monsters. In the first time zone, these come in the form of horses, skeletons, winged goblins who lob rocks on your head, and centaurs. These all charge at you, draining your energy if they touch you. All the sprites in this and the other levels are large, and excellently drawn and animated. As you run along the horizontally scrolling landscape, small statues need to be collected to form a jigsaw puzzle of the face of one of the conspirators. When a complete picture of the face has been assembled, the entity shows itself, and you get a chance to weaken it and progress to the next time zone. The entity is in the form of a huge shaggy pink wriggly flying monster. A good few hits are needed before it retreats to another time zone.

As you fight off the attacking foes, more powerful weapons become available. You start with only a deadly short range brain wave that emanates from your forehead. This can soon be upgraded to a long range zapper. You can also gain the ability to fly with a jetpack, and a number of spheres that encircle the hero, killing anything that comes into contact with them.

There are three time zones in the game. After ancient Greece comes a European-looking scene in the middle ages, where crossbow-armed snipers, dragons, knights, and more skeletons and goblins. Finish this stage, and you are transported to a space age city. Here you meet a great number of spaceships, robots and bubbles.





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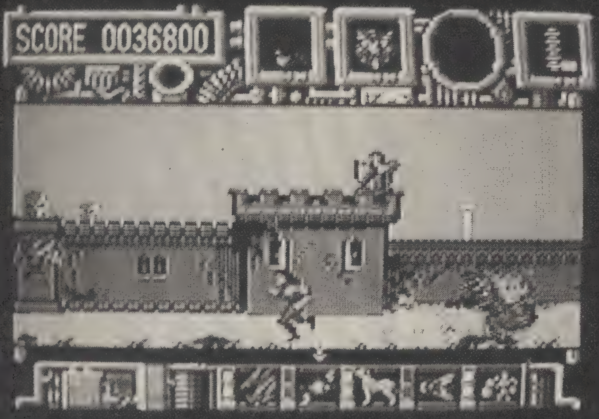

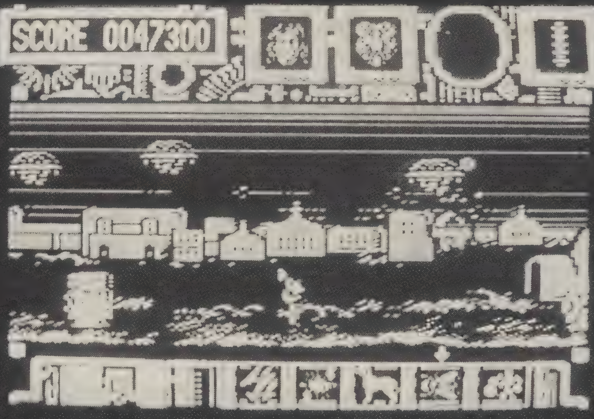

The graphics are excellent throughout the game, from the smooth parralax scrolling backgrounds and sprites, to the clever way of cycling through the letters on the high score table. The music is well worth a mention, as are the sound effects.

Hysteria is great fun to play, and aptly named, from the feeling of excitement when it's played. This is one of the few games which has great graphics, sound *and* gameplay. Don't miss it!

Graphics: ★★★★★
Sound: ★★★★
Playability: ★★★★
Rating: **Awesome**
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'OPINION'

Graeme Kidd, ex-boss of Zzap, Crash and The Games Machine magazines comes to CCI to take an independent look at the world of computer games and how it got to be the way it is today.

A year, it is said, is a long time in Politics. In the world of home computing, the average year is probably even longer... Graeme Kidd first started playing computer games for a living in 1983 when he worked on Central TV's MAGIC MICRO MISSION. Four years on, he reflects on some of the changes he has witnessed from the business end of a joystick. His opinions, of course, may not be those of CCI.

The Age of the Technician...

Computer games came into existence in the early seventies, when hundreds of basic chips were combined to produce simplistic bat and ball games. The foundations for the dedicated game console and the arcade machine were laid. At the turn of the decade home computers and games consoles began to arrive in the shops in their droves, but to begin with home computers were taken 'seriously'. Playing games was seen as a secondary pursuit, almost incidental to the serious business of getting to grips with the computer and learning how to program. Enthusiasts rapidly became computer-literate.

But what did they program? Space Invaders.

Thus began the era of the computer game, written at home by a talented individual, sold by mail order and duplicated in the living room as orders flooded in. Small, but respectable fortunes were made by the pioneers of entertainment programming who, by dint of innate talent and the good fortune to get hold of a computer shortly after its release, were able to satisfy the growing demand for entertainment programs. Home computers really caught on, and 'latecomers' preferred to buy a copy of Space Invaders for a couple of pounds rather than go to all the trouble of learning how to program and then writing their own version. Particularly so, when the 'pioneers' had leapfrogged into machine code.

Computer magazines were slow to catch on to these developments in the demand for software, treating games as a minority interest, almost too frivolous to deserve mention. They soon worked out that printing program listings supplied by enthusiastic readers was an economical way of filling pages. Even if most of these listings were listings of second-rate games programs, they surely had an educational value?

During 1982/3 things began to change. A handful of programmers had started to make names for themselves. We weren't talking stretched limos and universal acclaim — this is not, has never been and never will be the pop industry — but characters like Jeff Minter began to build up quite a following. And suddenly Liverpool was the centre of media attention as masters of hype, Imagine, promoted their programmers as mega-stars and promoted their games in a whole new way — full colour inserts backed by colour posters, full page adverts in computer magazines and the hard sell into computer retailers all characterised an Imagine release.

The better programmers realised that they could make a good living by writing games and gave up their 'day jobs'. 'Professional' marketing men entered the arena to promote the product and make money for themselves, and while companies like Llamasoft, Hewson Consultants and Incentive continued to grow from their programming roots, publishers like Richard Branson's Virgin empire stepped in, realising the money-spinning potential of the new medium. Other corporations joined in the action.

But what has happened to the games themselves in the past four years? Pundits claim that the industry has matured, by which they probably mean that the last few charlatans have finally gone bust and that the creative output of programmers and game designers has been firmly corsetted in the straightjacket of formal distribution channels. If your latest mega release doesn't have an advertising budget of tens of thousands of pounds to support it and a slot on the shelves in WH Smiths and Boots, you might as well give up, go home and start living off the land. Gameplay and creativity have become secondary components of the "marketing mix".

The quality of games, in terms of presentation, has continued to advance, and programming techniques have improved dramatically. Nowadays there's no way a programmer can go solo and write a hit game directly on the object computer — a development system is the minimum requirement, and few programmers work in isolation. Games designers, graphics artists and musicians are generally required, as well as a publisher to buy the rights to a character or arcade game in the first place. Nowadays writing computer games is big business — you need around $100,000 to play with if you're gong to pay the wages of a programming team for six months, provide premises and the licence and then follow up with glossy packaging, telesales and a serious advertising budget.

And people's tastes have changed. Simple, but maddeningly addictive, games like Incentive's Mined Out no longer pass muster. Aided and abetted by frantic, full-colour hype, it is the arcade conversion or licensed tie-in that dominates the full-price charts. Music, code and graphics have become the preserve of the team-oriented technician and much of the creativity seems to have evaporated. Originality is at a premium — once a 'new' type of game appears, a host of clones follows and publishers seem largely content to follow the creative lead provided (rather expensively) by arcade companies.

The computer entertainment market is led by action games, dominated by shoot 'em ups and arcade conversions which may or may not involve thinking. Not surprising really, as other entertainment media including radio, TV and newspapers are dominated by easy-access products that follow a familiar format.

> **'OPINION'**

For the thinkers, there are strategy and adventure games. While they have achieved a comfortable niche for themselves, more involved games have yet to establish themselves, in the UK and are certainly far behind achieving the dominant position they enjoy in the American market. Games like The Fourth Protocol and the soon-to-be-released Hunt For Red October cross the barriers that separate the purist strategy/-simulation/adventure game from popular appeal, and once programmers and publishers begin to exploit fully the capabilities of 16 Bit hardware, complex yet accessible games may well begin to gain ground over reaction games.

Technicians are producing the conversions and the licenced product and their output dominates the market. There will always be room for another elegantly executed shoot 'em up or accurate, playable arcade conversion — and there will always be a new batch of youngsters entering the mass market, looking for straightforward, fun games. With a few notable (and heavily plagiarised) exceptions, the technical improvements haven't been matched by corresponding improvements in gameplay, concept or creative input. The production line has overtaken the master craftsman.

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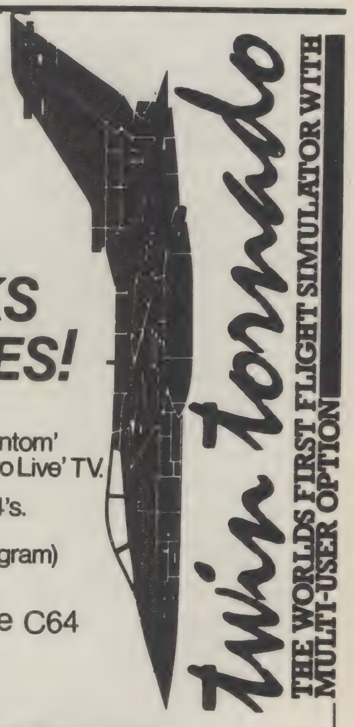
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IFFY

Classic 1 — The Edge

Most compliations contain a higher percentage of good games than bad, or at least enough to make them worth their while. Classix 1 unfortunately only contains one such game, that being Bobby Bearing. The other games would hardly warrant more than one go. These are Quo Vadis, Brain Bloodaxe, Firequest and Wizardry.

Bobby Bearing is a flip-screen Marble Madness Variant in which you take on the task of rescueing your fellow bearings. Converted from the original spectrum version, the graphics are in one colour on a black background, identical to those of the original. The disk version has a jolly piece of music, but when first released, the tape version was silent. A fun game with some nice touches like the rolling effect of Bobby.

Quo Vadis is one of those games that make you glad it's 1987, because a game this bad would never be accepted by any decent software house now. Unfortunately, this jerkily scrolling platform game has risen from the dead on the compilation. The background graphics are plain, sprites. Simple, and there's a distinct lack of colour. A tune to match annoys the player even more. Not a good 'un.

Brian Bloodaxe, a game that was said to make Jet Set Willy look like Wet Set Jelly, is an old platform game. Again, identical to the spectrum version even down to the flicker of the sprites. Brian, a shaggy viking with a horned helmet has to jump around the many screens, using various objects to open gates, blow up walls etc. Whilst avoiding the deadly flicker of the baddies. A lot better than Quo Vadis, but very dated.

Firequest, the sequel to UGH (not a game worthy of a sequel in my view) has you as UGH, surprisingly on a quest for fire. Dodge the spiders and negotiate the ladders to get to the swinging vines, Tarzan style it across the screen, and it's on to the next. It may sound exciting, but exciting it isn't. Basic graphics, sound and game make it boring to play very soon.

Wizardry isn't as bas as the last three. It's a scrolling 3D Arcade adventure in a similar vein to fairlight. Exploring a large castle, you encounter spiders, devils and other such yukkies from the underworld. Although not as detailed as fairlight, it's nice to see the multicolour mode in use. Arcade adventures will find plenty to keep them going, that is if they don't tire of it too soon.

Compared to other complications, Classix 1 doesn't come up to scratch with older games of poorer quality. Compilations are great for the new computer owner, but there are far better ones around than this.

Price: £9.95
Rating: Iffy

MEGA

6 Pak Volume 2 — Elite

This is the latest 'Hit Pak' (note the absence of a C for added impact) from Elite. The compilation contains five hits from the past, and a new title, Batty. As Batty hasn't been released before now, we'll take a closer look at it than the others.

There's no getting away from the fact that Batty is little more than an Arkanoid copy, but that needn't be a bad thing. The only real difference is the two player mode. When played in two player mode, a central division separates each player's area. This is a wall that extends a little way up the screen. The idea of the game is to knock out all the blocks in each court before moving on to the next. This is done by bouncing a ball off a bat to hit the blocks. Let the ball pass behind the bat and you loose a life.

Some blocks, when hit, turn into objects such as hands, money bags, or a skull and cross bones. It these are caught by the bat, depending on the object caught, the ball might split into three, points may be awarded, a laser to shoot the blocks, or a rocket to advance to the next screen could be yours.

The graphics are colourful and move smoothly, and a good number of sound effects are up to scratch. Played in one player mode, the game is almost identical to Arkanoid, but the two player mode adds an original and enjoyable twist. I wouldn't go batty about this on its own, but it's well suited to this compilation, keeping the overall quality high.

Among the previously released games on the compilation is International Karate. This was thought by many to be the ultimate karate game, until word of International Karate 2 got out. It is without doubt still the best straight karate game about at the moment, boasting eight different backgrounds (four in each load), large, smoothly animated characters, great music and sound effects, and bags of punchability. Unoriginal it may be, and most will already have this or a similar game, but it's great fun.

FTL's first releases are both on the compilation. The first, Shockway Rider, has you as a youth of the future attempting to go 'full circle' on the conveyor belt like walkways. This involves riding the three walkways which move at different speeds, survive all districts of the city and your goal is complete. To obstruct you there are static obstacles and nasty futuristic football hooligans. These can be delt with by a swift smack in the chops or a well aimed brick to the head. The multi-speed scrolling works very well and changes speed smoothly. The sprites have a cute rabbit-like look about them. An appropriately boppy Rob Hubbard piece plays as you do. Not much variety, but a lot of fun.

Lightforce, FTL's second, is a vertically scrolling space shoot 'em up. The game takes place over four levels. These are made up of a variety of aliens attacking over space scenes and galactic structures. As you make your way on into the universe, the aliens rain down onto your ship. These must be dodged in the usual fashion. Lightforce is well written, with fair graphics and a rather tame Hubbard tune. The game doesn't add anything to the hundreds of existing shoot 'em ups, but will give fans of this type of game some enjoyable hours of blasting.

To add a bit of variety to the compilation, ACE is included. This is the forerunner to ACE 2, reviewed last issue. ACE is a flight simulator in which you attempt a number of missions in an all weather all terain combat aircraft. You can chhose to battle for air superiority, a ground or naval attack, or play a multi-role.

If you've played ACE 2 and wanted a more realistic flight sim in the way of ground features and take off sequence, then this will be well worth your while. The plane is fairly manoeuvreable, and realistic dog fights can be fought.

Elite's past compilations had a good selection of quality games, and this is no exception. Assuming you don't own these games already, this is a great buy, and well worth the money.

Price £9.95
Rating: MEGA

MEGA

Ten Great Games — Gremlin

As you must have guessed from its descriptive title, this compilation is made up ten games. Some great, some not so great. The games are as follows.

'Avenger', the first is a Gauntlet/ Druid style game with ninja overtones. Your father has been assassinated and you must recover the scrolls stolen during this murderous deed. Exploring a colourful scrolling area of countryside and mazes. Lots of nasties lock on to you and must be splatted with a throwing star, or kicked.

Graphics are colourful, music suitable, but the gameplay adds little to the wealth of similar games around. Not a bad game by any means.

'Future Knight' takes the Ghosts 'n' Goblins theme into the future and exchanges the graveyard for bas-relief platforms and ladders, and lances for lasers. The idea is to find the robot at the end of each level and make your way to the exit to the next level. Acid pools and robots get in your way and must be shot.

Unfortunately, Future Knight is slightly lacking in excitement and variation. Scrolling is smooth, and there are some nice sound effects, but all the sprites are the same colour, and the game gets a little boring, though I'm not sure why.

'Krakout' is Arkanoid turned on its side. You know the story, bounce the ball off a bat onto bricks, occasionally hitting aliens and acquiring various gadgets to make life easier. A good amount of options are available, with the choice to play from the left or the right. For someone who hasn't played any of the Arkanoid type games recently, Krakout could give some good entertainment, but it could do more to excite the experienced game player.

'Bounder' is a highly original vertically scrolling game set high in the sky. The idea is to navigate your bouncing tennis ball across the many levels of platforms, walls, teleports and numerous baddies amongst other things. The screen scrolls at a constant rate with a nice parallax effect of the ground below. A bouncy tune play along with the action and the sprites and backgrounds work well. This is my favourite game on the compilation, although I was surprised at how quickly I tired of the game after its original release.

'Footballer of the Year' is really Football Manager with a bit of joystick action. You manage your team and must attempt to win the title of Footballer of the Year. As well as all the tactical decisions you'd expect to have to make, you have chance to score goals in the matches. This sequence is a simple aim and shoot task, but involves a fair amount of skill. I find these games boring, but know others feel differently. Footballer is a good game of its type which will appeal to football fans.

'Trailblazer' is a similar game to Bounder in that you control a bouncing ball, attempting to complete all the courses of platforms and gaps. The course is viewed from behind the ball in 3D. Each course consists of different coloured squares and gaps. The colour of the square you bounce on will determine what happens to it. It may bounce higher, slow down, speed up, or even reverse the controls. Trailblazer has a two player mode using a horizontally split screen for each player's view.

Colourful graphics and lively music complement an equally colourful and lively game.

'Highway Encounter' is a conversion of the old Vortex game originally written for the Spectrum. The idea is to get to the end of the highway and put an en to the alien invaders. The highway is displayed in 3D similar to that of Head Over Heels. You control the leader of five robots which will travel in a straight line, sometimes straight into an alien, unless you stop them. These are your back-ups for when you get the chop. It's a nice change to see the monochrome graphics from the Spectrum version enhanced with colour, something which would be more than welcome in other such games. Highway Encounter is an original game wth a strong pull that keeps you coming back to clear another screen.

'Monty on the Run' is the third Monty platform game, Wanted Monty Mole and Monty is Innocent being its forerunners. In typical Monty fashion, the game involves leaping from platforms, dodging abstract sprites and collecting objects, money in this case. This was one of Rob Hubbard's first widely recognised masterpieces. The graphics are all hi-res backgrounds and sprites, but work very well. There is also an adventure element. Before starting, a survival kit must be made up of a number of objects which are essential to the completion of the game. Platform games are old hat now, but this has to be one of the best ever released and is still good fun now.

'West Bank' has you as a bank security officer. This is no ordinary high street listening bank, it is set in the wild west in the days of Champion the Wonder Horse. Three doors continually open and close to reveal customers and bank robbers. Quick reactions are needed to sort out the good from the bad. Kill an innocent customer or fail to shoot a baddie in time and you lose one of your three lives. Each character is very colourful and large, drawn in a cartoony style. The simple gameplay is good fun, and will appeal to fans of the coin-op Hogan's Alley.

'Jack the Nipper' is a little rascal. All he wants out of life is to cause as much trouble as possible. With all the social worker types about, it's hard to find something naughty to do. Everything is hidden or out of reach, but with a bit of thought, much mischief can be had. Mums, dads, and other do-gooders must be avoided at all costs to prevent a nasty nappy rash. Graphically this is pleasant, with characteristic sprites moving over hi-res backgrounds. The music is OK, but gets annoying quickly. An original arcade adventure which will give a fair few hours of fun.

Although none of the games on this compilation are particularly outstanding by today's standards, the number of them for a tenner make it excellent value, and a great buy for anyone new to 64 computing.

Price: £9.95
Rating: Mega

EARTH ORBIT STATIONS

The Federation of Earth Orbit Stations (EOS) welcomes you to the exploration and development of the solar system. You and up to three others have been chosen from among your fellow graduates to assume the roles of Space Directors. Your goal is to build space stations, conduct research programs, market your products and compete against each other in an effort to expand the wealth, technology and knowledge of the human race. There are a number of specific missions to undertake ranging from pure research to the search for life in the far reaches of the cosmos.

Well that is the introduction to the game... not really a game but a real space race simulation. The latest space news is that of a Russian cosmonaut who has spent a record breaking several months circling around the earth in what must be a very cramped space station. The USA have plans to build extremely large and complex laboratories in space. Some of these plans are well-publicised from producing complex alloy metals in earth orbit to building settlements on Mars.

This simulation comes from Electronic Arts, who have in recent months, released several very good and well presented packages on the UK game market. The graphics screens are very neat and easy to get assustomed to. Joystick movement of the icon to access sub menus and positioning of modules on to your station etc. is made quite simple.

You have a choice of competing aganst friends or the computer. There are seven missions possible to undertake. Each can take a minimum of 2 hours to complete, so on these long winter evenings why not take up the challenge of "Space... the final frontier".

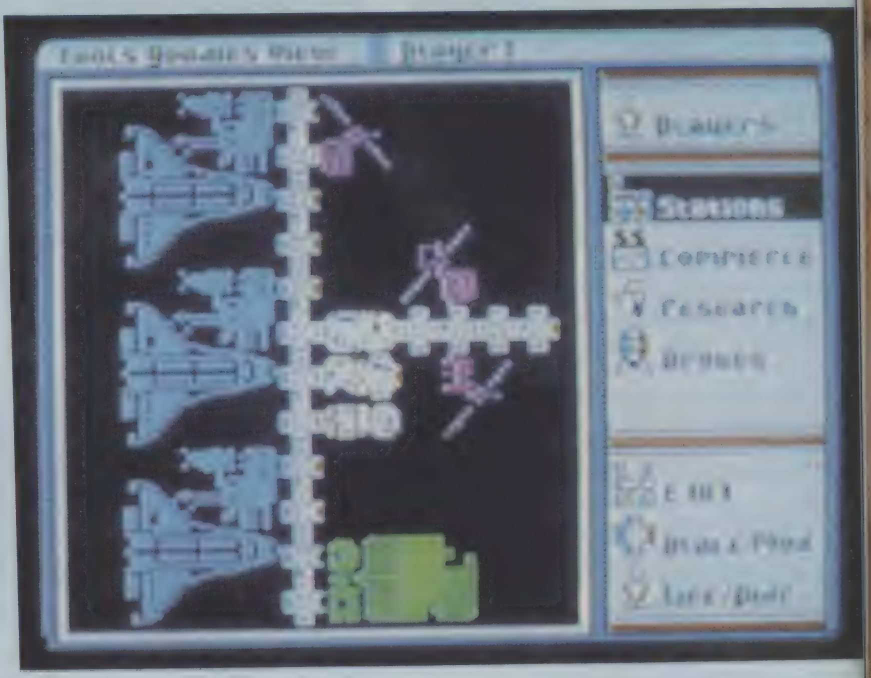
Each space station is constructed using money put at your disposal at the start of the game. These are built by piecing together modules of varying descriptions a bit like Lego! Each station must be built around a command centre and logistics module. Using connectors you could add on as many different laboratories, telescopes, weather centres, hospitals, dry docks, shuttle ports or life support modules etc. as your income can afford. The idea is to buy and sell or produce your own commodities by watching market trends. You must start with a sound economic base. Without this, as with a real project, your future as a Space Commander is doomed to failure.

The game starts in the spring of 1996, each 'turn' takes you forward one fiscal quarter, the length of each mission you decide to undertake varies with each scenario. It reminds me a little of what space 'monopoly' would be like. A game for real capitalists! I found by watching what decisions were made when playing against the computer in the first instance, an easy way to learn and see how best to play the game. It was, I must admit, not easy to win but as your experience builds so do your space stations.

Long live space exploration. I have learnt a great deal about research and technology just by playing this game... or is it an educational program? Try this one for yourself. You could learn the meaning of life the universe and everything and get the same answer as I did... 42!

B.C.

Price £16.95 (d)



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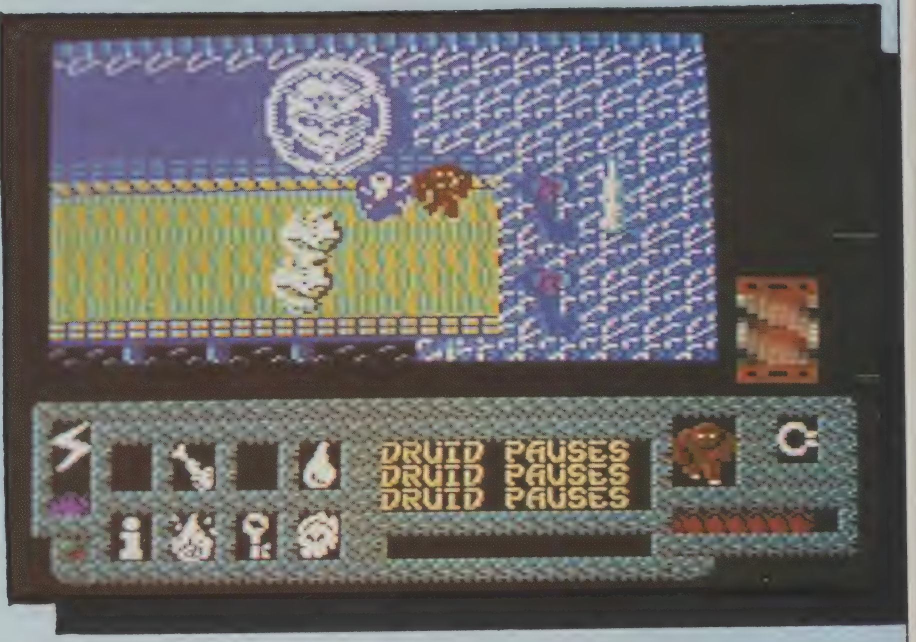
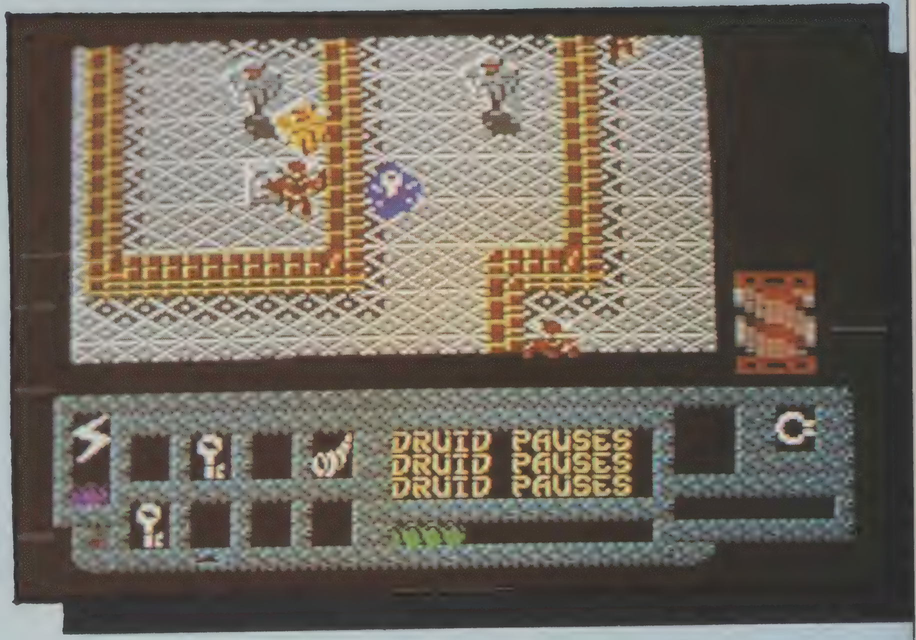




Druid II 'Enlightenment' — Firebird

When Druid came on the scene, the Gauntlet craze was just beginning. It was the first recognisable Gauntlet style game. Since then, many Gauntlet games have come and gone, and just when it seems to be dying down, Druid II comes out.

After wading through the long-winded instructions/story, you realise that Druid II is really more of the same. The basic idea is to rid the land of the Acamantor by casting the White Orb spell.

You start in the land of Belorn. Belorn is made up of ten areas of contrasting scenery. Once past these, you can enter the Acamantors tower. The top half of the screen portrays the action, with the status area at the bottom. Each land is made up of everyday land features that form a maze of sorts.

Of course, there are the baddies to contend with. These vary according to the area, from zombies, to trees, and lots more. You begin armed with a store of electrical charges which deal with zombies OK, but other nasties can be more tricky. Around the land you find spells. Cast a spell, and you could have a re-filled stomach, a wall of fire, or a Golem amongst other things.

The Golem is an idea carried on from Druid. He is a big clay monster who acts as a body guard. He can be controlled by another player, or by a confusing keyboard method. Incidentally in the 'not many people know this' category — a golem is an historical Czechoslovakian invention that could only be controlled by a virtuous person — which rules out most of you!

The graphics are in the same style, with colourful backgrounds and agreeable sprites. The title screen music is nothing special, but suits the game. Sound effects are rather simple.

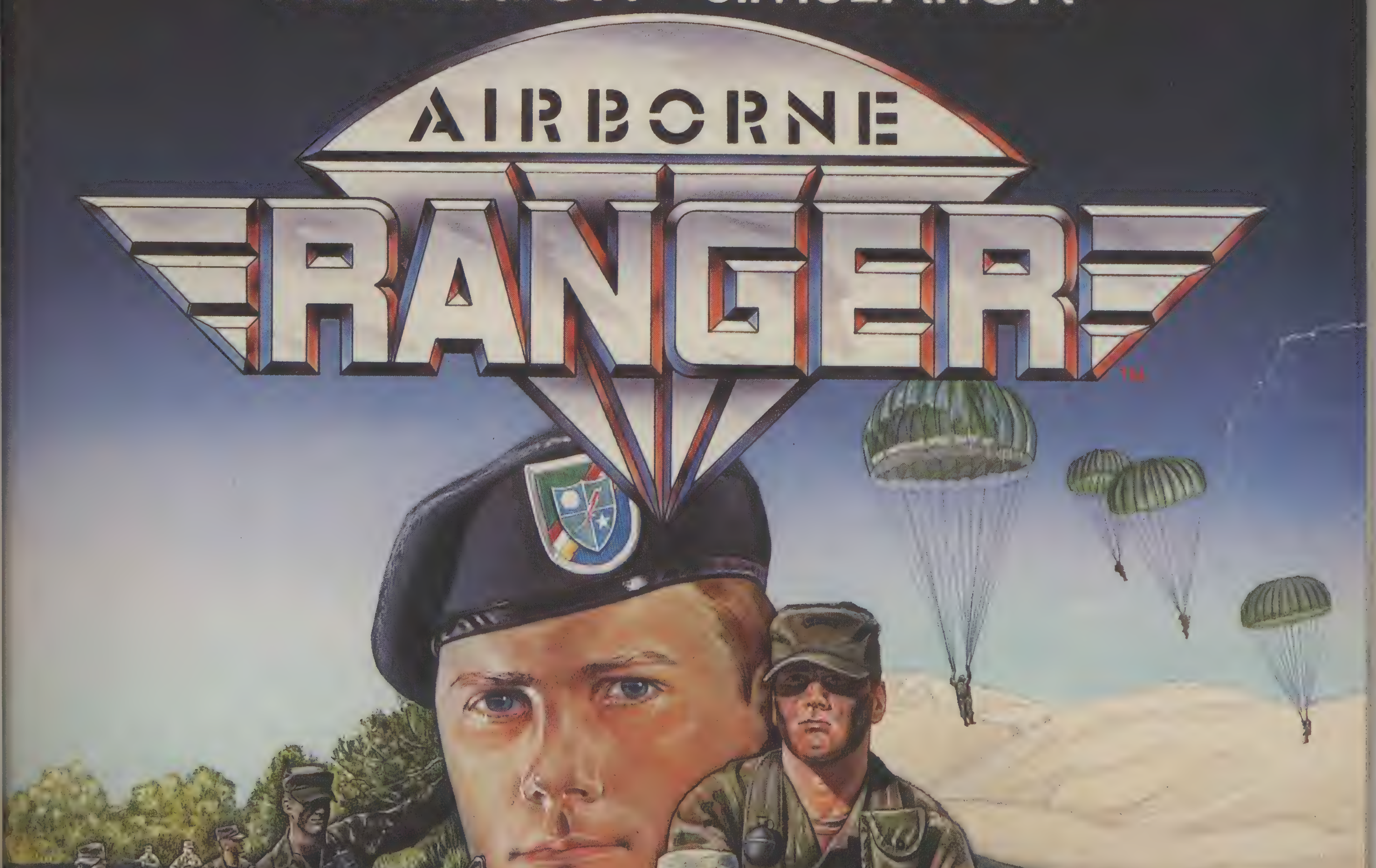
Druid II is bigger than Druid, with more spells, but the game plays in a very similar fashion to its forerunner, the only real difference being the layout of the landscape.

Fans of Druid will no doubt enjoy this, but I can't help feeling there's been little real progression, although it is unquestionably one of the best game of its kind. Give it a go if you don't already have enough of these games.

T.H.

Price: £8.95 (c) £12.95 (d)
Graphics: ★★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

THE ACTION—SIMULATION



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Micro Rhythm + — Firebird Silver Range

This is the follow up to the very successful Microrythm, and again, as its predecessor, represents excellent value for money. It has now incorporated many new features, as well as retaining its old ones. Now instead of just one set of sound effects, there are four — each coming in separate loads.

The first side has two more usual rhythms these are Microtune and Microlatin which contain sampled drum beats, claps and cymbals. For £1.99 these alone would have been good enough for me — even singly — but Firebird have surpassed themselves this time. They have put in digitised speech, and Microdisco, which has some very impressive electric guitar sounding effects.

This tape is great fun to use and you can even make up your own tracks and save them. If you've ever fancied yourself as a bit of a musician, give this one a whirl — you can't lose at £1.99.

Value Rating: 9

Power Pack —Audiogenic

Audiogenic have decided to release a compilation pack of four games, that were previously sold singly, a year or so ago. These games are Kaktus, Leapin' Louie, Chip Factory and Tomb of Tarabash.

Tomb of Tarabash is an exploration shoot 'em up with a few smal puzzles thrown in for good measure.

No sooner do you enter the tombs, than you realise there are all manner of booby traps, dead ends, mummies and other deadly creatures out to stop you. You're going to have to be very accurate with your trusty blaster if you're going to survive this game.

It was last year, one of the best games around. Nowadays, at budget price its still a good game, — certainly worth at least a few days playing time.

Leapin' Louie is another golden oldie and has a similar graphics style to Tomb of Tarabash — both have stick-like figures and colourful graphics and good animation.

The rooms are full of robots and traps and you must avoid these to get through to the shuttle bay and escape to safety. The rooms are connected by a series of teleport machines which need to be powered before they will work.

You get three lives, and an extra one, every 10,000 points, which is a big help as it takes a while to get used to negotiating each room.

The music is loud and wacky and I find that this game is very enjoyable to play, it has just the right mixture of playability and difficulty to keep you trying again and again.

You have to risk your life to save some cacti-can you believe it? The only way to save the cactus is to strike at your enemies first. This means you must shoot, from your underground hideout, eliminating the wasps and hornets before they can bite your beloved cactus. The hornets and wasps look the same, except that they have darker heads, but they are twice as dangerous, because it takes two shots to kill them and they take two bites from your cactus.

The game ends when you let the base of the cactus gets bitten away, or when the ground on either side of it gets eroded by the wasps acid drops.

This is a great game, though the graphics are pretty basic, it plays at a frantic pace.

Chip Factory is a platform type game. You play the part of Charlie — trainee accountant in a silicon chip factory, but he'd prefer to be on the work floor. So one night when everyone else has gone home, he starts up the production line — and all hell breaks loose.

As Charlie runs around the factory moving chips from one level to another, keeping the production line moving, he is hampered by bugs that run the programs in the chips, spanners that get in the works, and sparks of static electricity that cause everything to go haywire. If any of this stuff gets Charlie as the production line cuts out and if it happens too many times (3 to be exact) the line stops for good.

But don't worry too much, you can drop chips on the bugs, or spray them with a can of anti-static, which stuns them for a while — the can lasts for only 19 squirts, but can be replenished by 3 if you catch a letter from the word CHIP, and can be totally refilled if you get all four letters.

This compilation as a whole seems unimpressive but contains some good games, have a look at it — you'll probably be surprised how you enjoy it.

Value Rating 6/10

Arcadia World Championships

The recent PCW saw the launch of Mastertronic's new Arcadia arcade machines. Mastertronic have such faith in the Amiga, that they have used them as the basis for these arcade game machines. To publicise their launch, a competition was held between the English media and an all singing, all dancing team from the good old US of A, to find out who were the world champion joystick jockies. These Americans were going to be no push over (they hold numerous world records), but we had an expert team made up of Daniel Gilbert, Julian Rignall, Ian Machin, and me.

After warm-ups on both Road Wars and Rockford (an enhanced and very fast version of Boulderdash), we were ready for them. The real thing took place on the Rockford machine. After half an hour's tough, fast, sweaty-palmed gaming session, the teams retired to the dressing room to await the results. The result was, (of course!) a win for the UK team. The highest scorers of each team walked away with a Sega games system, and there was champagne for the Brits. All in all a very enjoyable experience, courtesy of Mastertronic.

T.H.

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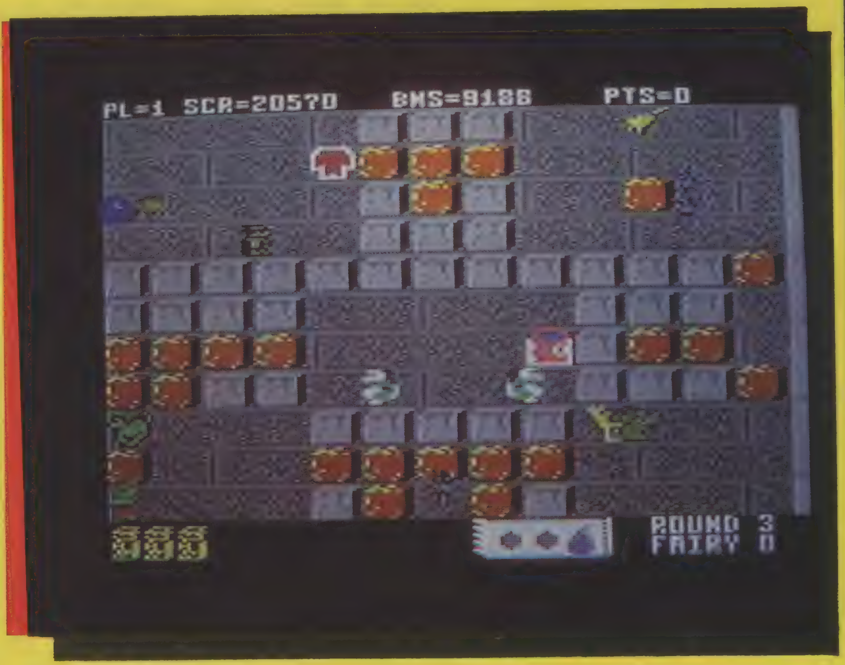
C64



Solomon's Key — US Gold

This is US Gold's latest coin-op conversion from the original Tecmo arcade machine.

The game comes with hardly any instructions, but I gathered from what there was that the idea is to find the key to open the door to the next room, and ultimately find lots of treasure.

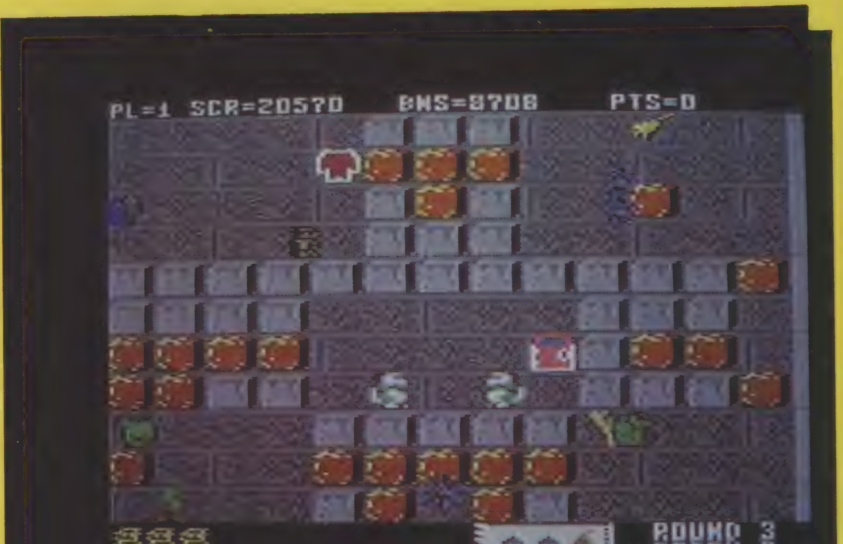
You take the control of a short fat character dressed in green, carrying a wand. Around the screen are an arrangement of stone blocks, some coloured grey, and some brown. Grey stones are permanent fixtures, but brown ones can be moved about. Waving your wand at a stone takes it, and waving your wand in a space drops one (ooer, sounds a bit rude!). Some nasties and yourself are affected by gravity. Because of this, steps must be built by manipulating stones, in order to move up the screen.

On each screen are a number of nasty sprites (nasty in every way including design), flames, bonus objects and a key. Collecting the key will open the door to the next room. Contact with a nasty or running out of time will cause a loss of life. About the only things on your side in the game are the fairy that gives you an extra life, and three fireballs which help ward off nasties.

Soundwise, Solomon's Key is OK, with simplistic jingles and sound effects.

I'm not too keen on this game. I can tolerate the average graphics and sound, but there just isn't enough to the game to give me the urge to keep playing. An arcade conversion it may be, but 9.95 is still a lot to pay for it, and this price seems more likely to be a reflection of the licence cost. Fans of the coin-op should give it a whirl, but I can't see many others raving over it.
T.H.

Price: £9.95 (c) £14.95 (d)
Graphics: ★★
Sound: ★★★
Playability: ★★★
Rating: Iffy



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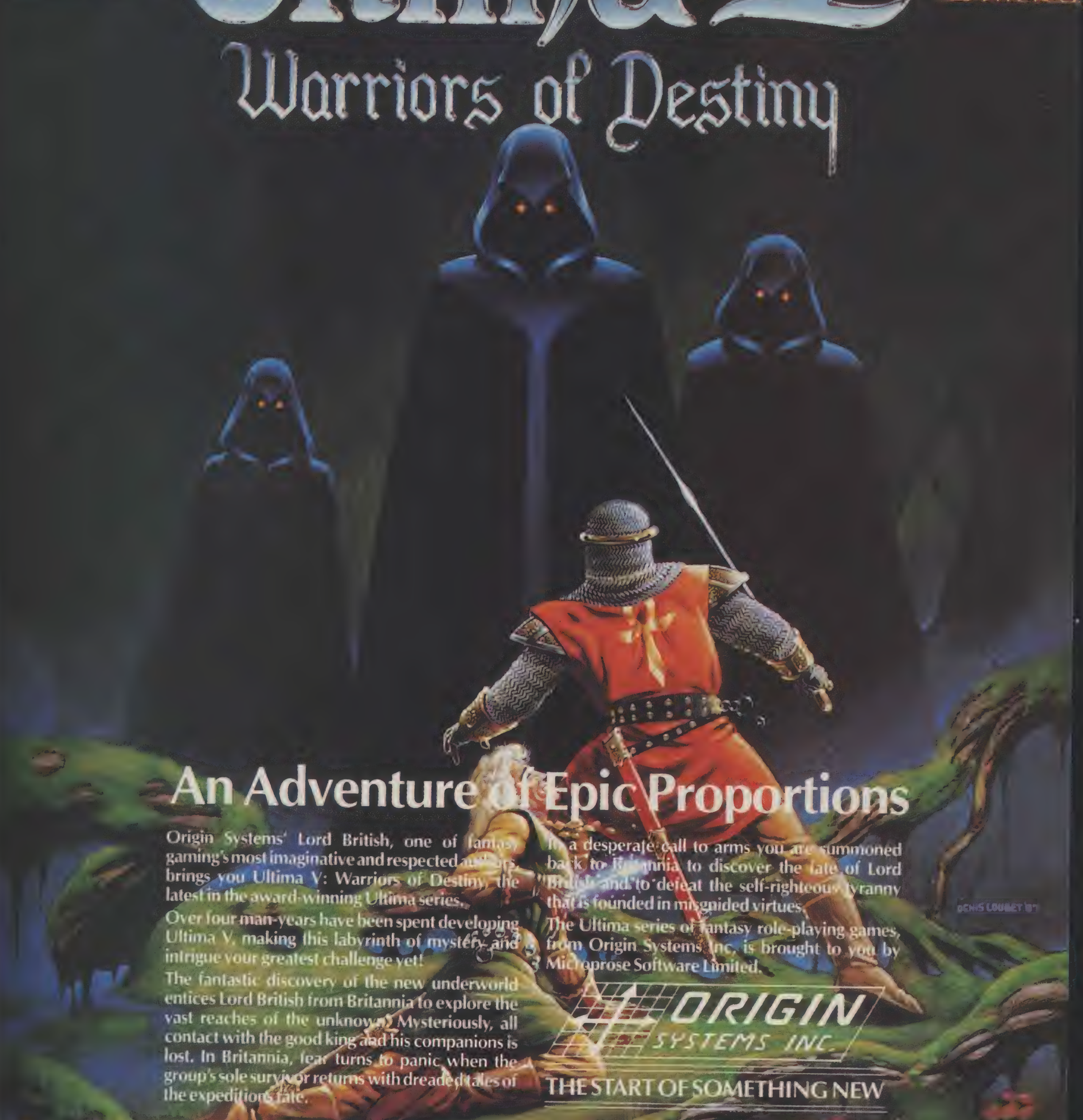
Ultima V

Warriors of Destiny



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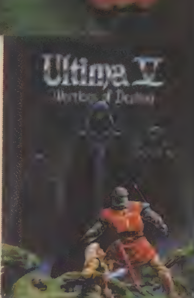

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SIMON NICOL GOES MEGA

Martech's Megapocolypse impressed everyone at CCI for its sheer sparkle and especially the thunderous sound effects. Simon Nicol who created the game came by to show us how you really get the best out of it. Tony Horgan gave him some coffee and asked questions.

TH: First things first, what did you do before Mega Apocalypse?

SN: Well, Crazy Comets, surprise surprise, antoher one that I'm going to keep anonymous. It was a personal favour. Do you remember Tornado Low Level?

TH: Yes, I liked that.

SN: I did the 64 conversion for Ocean. Before that, I wrote Mad Planets, another mega surprise!

TH: Something I'm sure a lot of people would like to know is how you got started in machine code.

SN: In those days of Purple Turtles and Quintic Warrior, you had to teach yourself, just trail and error. It took me about 11 months to get up to Crazy Comets standard. I started at school in the fifth year. I got into arguments with my teacher all the time, because he had a BBC and I had a 64, and all the 64 owners would be on my side and the BBC owners on his side, and I'd be their mascot speaking on their behalf, and the teacher just could do nothing.

TH: Sounds like you knew more about it than he did!

SN: As far as the hardware and programming is concerned, I did.

TH: That doesn't sound too unlike my own computer studies lessons!

SN: I did a maze game for a school project, then I started doing this game you've forgotten about by now, that was in the fifth year, and I lost out on school work a bit, and left just before going into the seventh year. Then I decided I was going into programming.

TH: So who bought your first game

SN: No-one, because it was such a rip-off of a recent arcade machine. None of the companies wanted to know, but Beyond nearly bought it three years ago. The contract was just about to be signed when this fat idiot came out with 'Oh you do know about the copyright on the arcade machine don't you?', so the whole deal was called off.

TH: Mega Apocalypse now. What made the game for me was the sound. Not just the music, but the whole effect of music, effects and speech.

SN: There was an explosion I had, not in the finished one, that was such a mega-big explosion that the whole monitor rattled! I've blown six 128D's up writing that game. To make sure that it won't crash, I left it on all night, and connected it up to the video. Then I can zip through the video and find out if and when it crashes.

TH: Could you let us in on how you managed five channels?

SN: Well, you can't keep a secret long in this business. It's a known fact that you can use a volume register for a fourth channel, but there is another register that you can use for speech and explosions. The trick of the speech is to keep it really fast, becaue it's so demanding on processor time.

TH: Will Mega be converted to any other formats?

SN: Yes, Spectrum, ST Amstrad and Amiga.

TH: Will you be doing any conversions?

SN: I'll probably be doing the Amiga version. I'll be excelling myself with mega-samples of course.

TH: What to the future then?

SN: I'm planning a game called Derek Bell's Le Mans, but there's not much I can tell you about that at the moment.

TH: It looks like we're running out of space, so I'll have to thank you for your tme, and good-bye.

SN: And the same to you!

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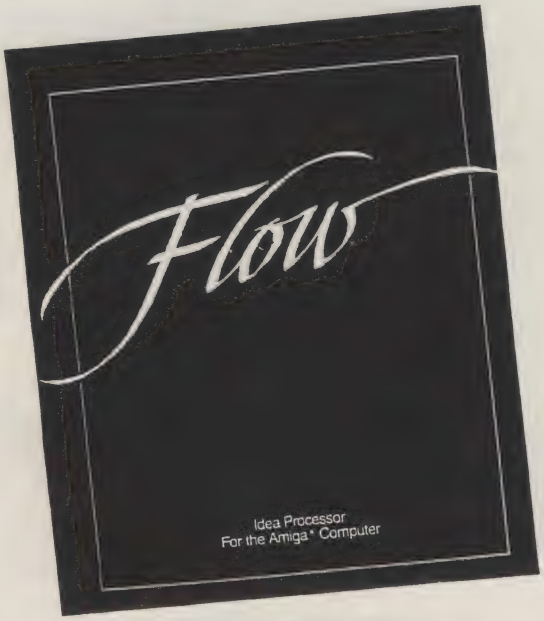
NEW AMIGA

Virtually all the companies involved in producing software and hardware for the Amiga were represented at the AmiExpo in New York. Many of them were releasing new or updated products. We shall be reviewing or reporting on them all in coming issues of the magazine. There were some attracting considerable attention or were interesting enough to merit an early mention if only a brief one as we are going to press immediately after the date of AmiExpo.



FLOW — UPDATED

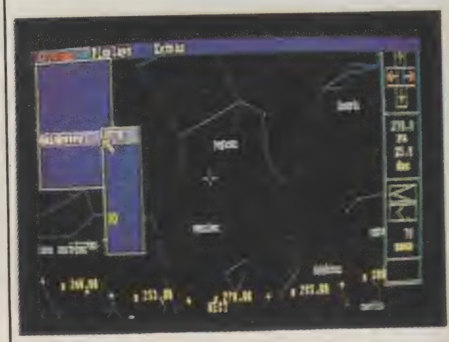
One of the most interesting ideas was literally an Ideas Processor — FLOW. We have reviewed Flow before but there is now an updated and improved version available.

With Flow you can organise anything from presentations to parties. You enter your ideas in outline. Selectively pulling up only the portions of interest, you can use Flow to help you quickly and easily bring the important ideas into sharp focus. It uses all keyboard features including command key menu equivalents, keyboard shortcuts and the function keys. New Horizons Software would be willing to let you upgrade to the improved version for a small fee.

GALILEO

Challenging for the title of the most unusual product at the Show was Galileo. This is a software program that lets you look up to the stars and find out which star is where. The astronomy package uses a database of over 1600 stars, displaying them like a planetarium. You can track the planets of the solar system too, study the pathways and the planetary conjunctions. The whole thing is a depiction of the sky in the way that we would probably all like to see it — without being troubled by the weather or having to study complicated mathematical or astronomical tables. Galileo himself, I am sure, would have loved it.

The Galileo package, appropriately, comes from Infinity Software.



PRODUCTS

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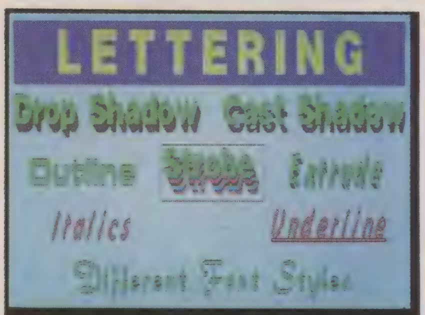
TV Text is a titling package that lets the Amiga turn out the quality of video character generation that is normally only found at a professional level. You can use it for creating lettering and backgrounds for presentation graphics or video applications in either 640x200 or 640x400 screen modes. You can use full compatibility with IFF graphic formats for image importing or exporting and also use it with a genlock for video applications.

The head of a New York video studio told us that she already uses TV TEXT for professional video use.

Zuma who make TV TEXT also supply a range of fonts which are compatible with the package.



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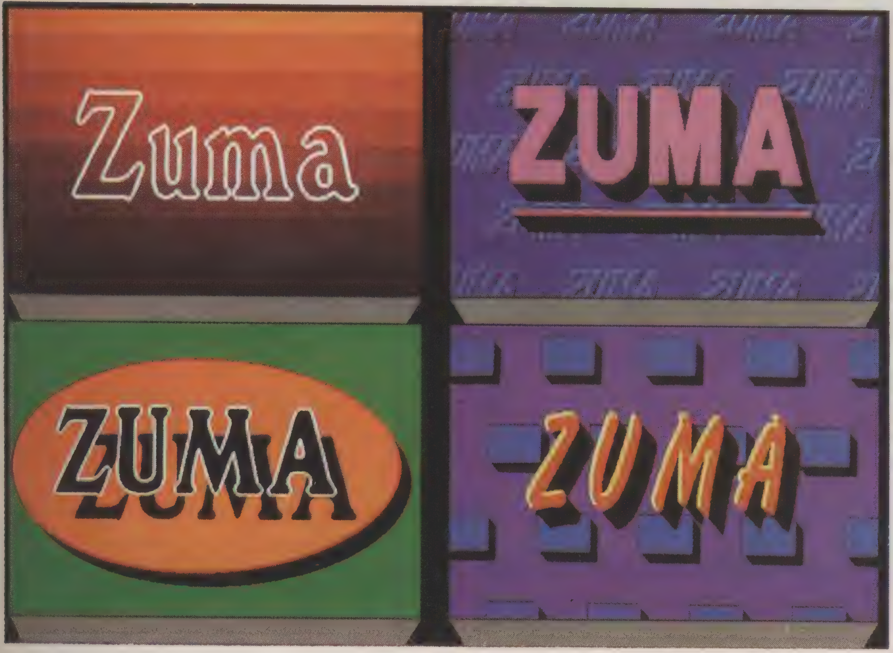
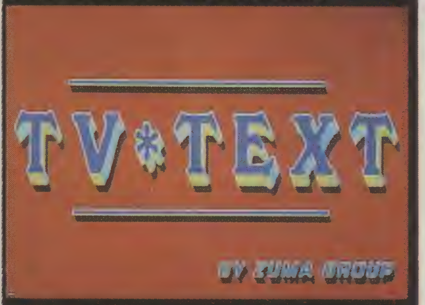
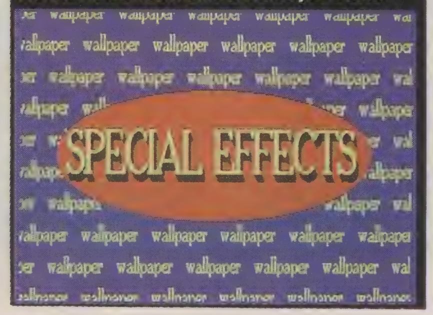




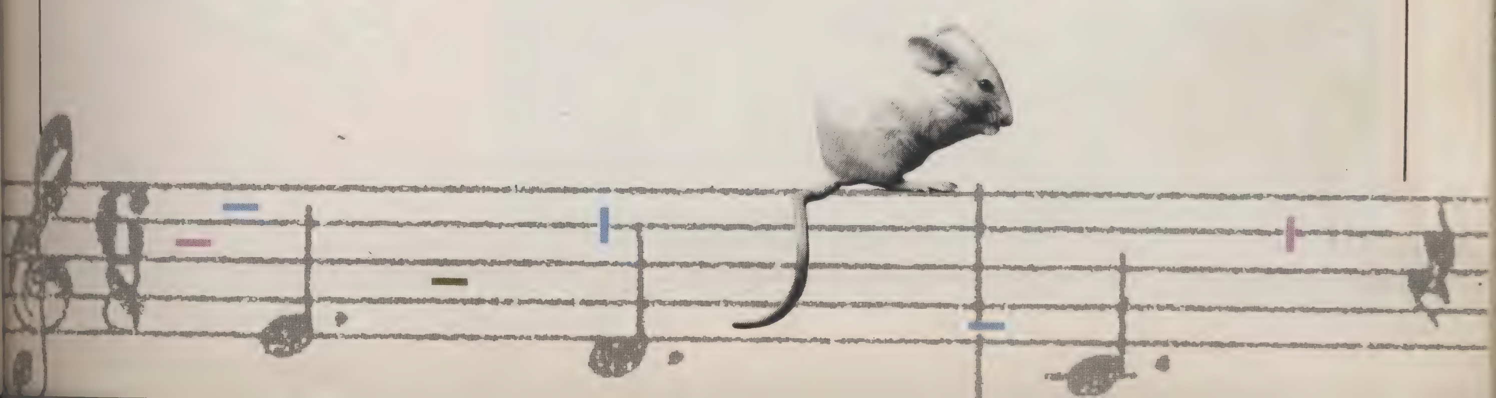
Extruded (3D) with drop shadow. Horizontal lines with outline & shadow. Different font styles & sizes.



MUSICAL MOUSE

Musical Mouse is a delightful product that really does let the totally helpless musical amateur feel as if he were Beethoven, at least. It works on the simple system of four thin bars across the screen. The horizontal bar — or bars you can use them two and two or three and one — are for single notes and the vertical for chords. They are programmed to let you play with the mouse, horizontally or vertically — tuneful sounding music that you control by moving the mouse up or down. It is totally simple and yet sound absolutely delightful. And it looks very good to with changeable graphics. There are lots more complications you can use from the menus such as harmony, transposition, voicing, counterpoint and electronic orchestration. All features are realtime and interactive. Because the Musical Mouse can produce more than 30 four note chords per second dense electronic textures can be produced.

Musical Mouse was previously available for the Macintosh only and is now a very pleasant addition to the Amiga musical armoury. The price in the US is $72.00.



C64

MEGA

Red Led — Starlight

Take elements of Marble Madness, Spindizzy, Blockbusters, and throw in a bit of shooting for good measure, and you've got Red Led. Blockbusters and Marble Madness may not seem the perfect combination, but its similarities with Blockbusters aren't the greasy-haired spotty university boffins studying for a degree in metaphysic chemistry, but the ultimate aim of the game; to make a path across the board of hexagons.

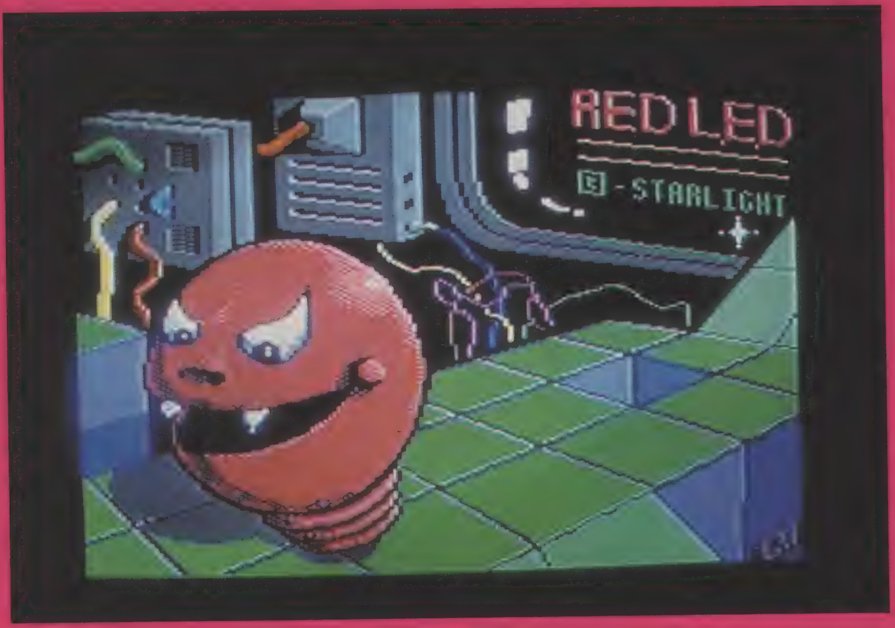
At the start of the game you are presented with a neat map made up of hexagons, each of which represents a battle terrain. Here you select which land you will play on, and which droid you will use, certain driods being more suited to particular lands.

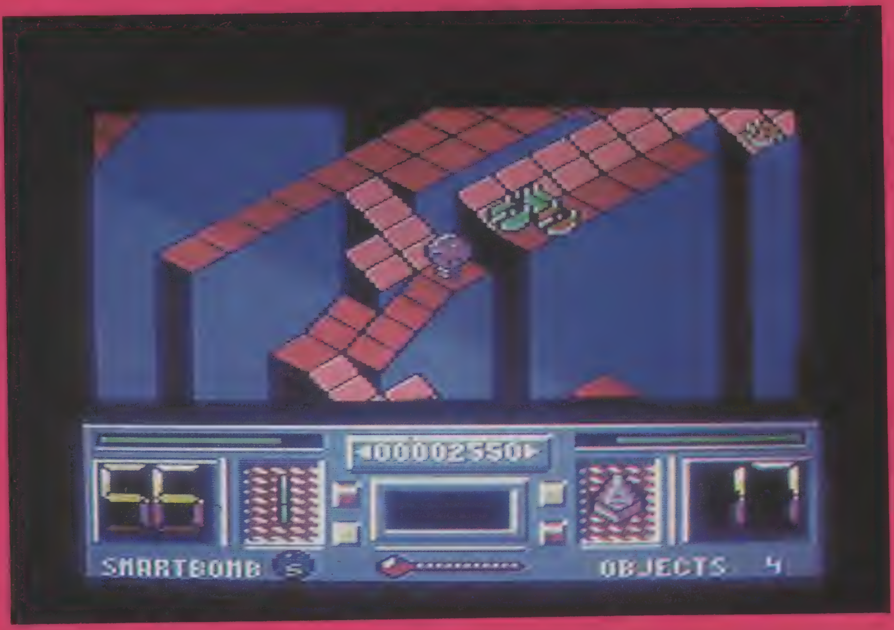
With that out of the way, it's on to the game. Each land is made up of slopes, holes, narrow ledges and acid pools, and displayed in multi-directional scrolling 3D. To win a hexagon on the board, all the energy pods must be collected, and the exit found before your droid cocks out due to contact with kamikaze aliens, being sizzled in acid pools, or falls into the void.

Control of the droid is similar to Spindizzy, with variable speed and the ability to travel in any direction, as opposed to the usual eight directions.

The lands are drawn with a grid pattern to show up slopes and flat land. These don't have many features, but are well thought out with the odd message incorporated into the designs. The sprites are of the kind you might expect from a game such as this, abstract blobby creatures which are reasonably well drawn and animated. Considering the scrolling is in more directions that eight, it's surprisingly smooth. Sound effects in the game are simple but adequate.

Although this is an old idea, Red Led is great fun to play, and anyway, how many original games do you expect to see these days? As Arkanoid has shown all too well, a game doesn't need to be very original to make it big. If you liked Spindizzy, this is for you, and even those who don't will find it hard to resist. Definitely Starlight's best yet. Francis Lee is coming back to form.
T.H.





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Graphics: ★★★★
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Playability: ★★★★
Rating: Mega

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So we are now going to supply the routines from the pages of CCI on cassette or disk. Readers will be able to subscribe for a year's programs. The year's programs will be divided into quarterly cassettes or disks. Each tape or disc contains the full three issues' programs and will be mailed at the end of January, April, July and October, 1988. Should the programs fill more than one cassette or disk, a further cassette or disk will be sent without charge. The cost of the complete year's programs, cassette or disk, is £12 (including p&p). We regret that at present we can only supply these for the UK and Eire.

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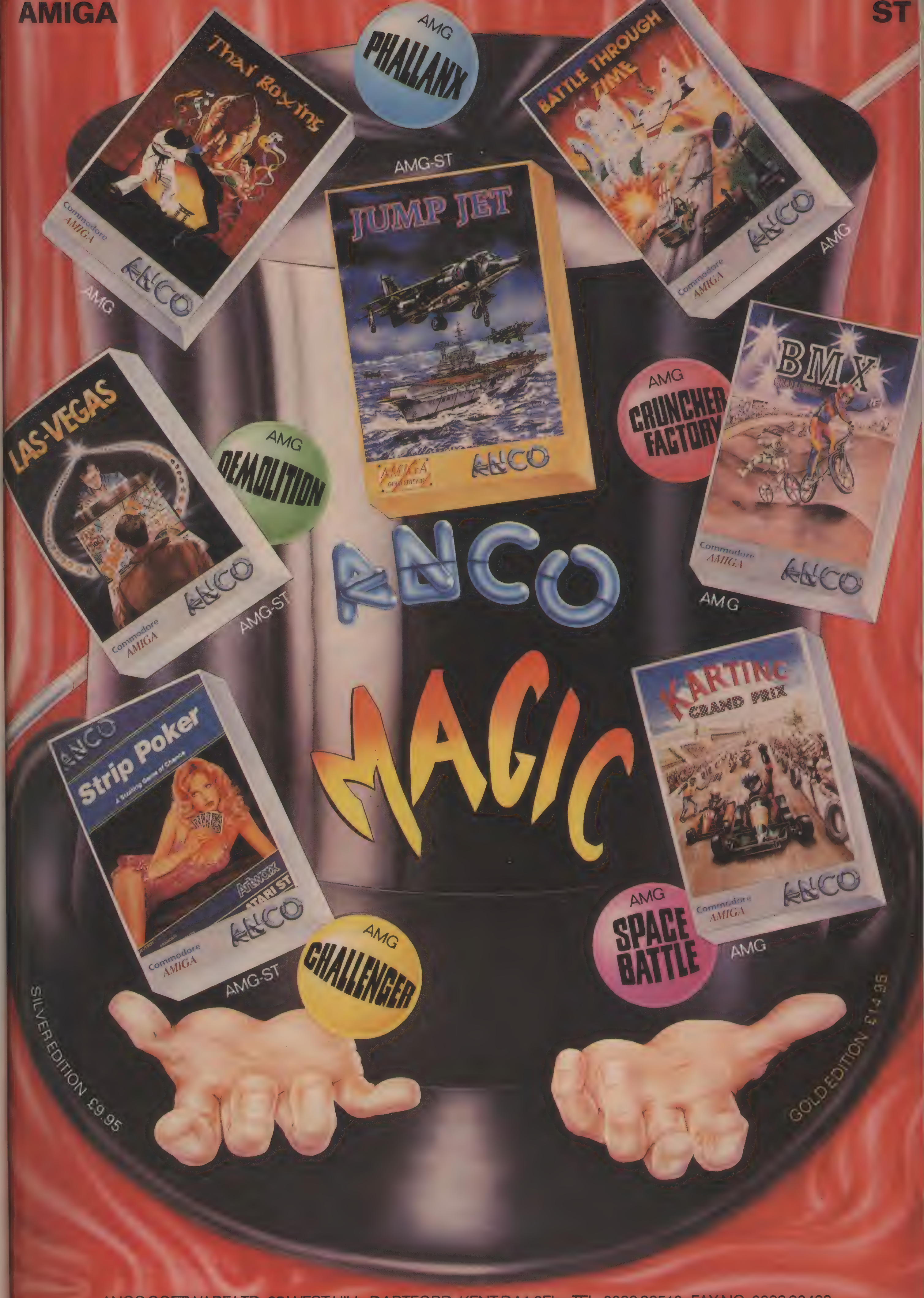
Martech, creators of really explosive games, think their Mega Apocalypse game is atomic, at the least. They are really keen to see if you can find anything to compare to the brilliant level of explosive gameplay this game offers. So they are providing the most explosive prize yet for the winner of this exclusive CCI competition.

The winner will get a day out for two at a quarry or some other equally dynamite place where they really do blow things up. No, we aren't sending you up — at least not high in the air! Martech will lay on this TNT of a day, including rail fares in the UK and enough food and bubbly drinks to blow you out if not up for the winner and the companion of his or her friend, brother, sister, mother or grandad or anybody who can stand the bang and crash. The winner will be the first card drawn out of the CCI Comp Sack and will get a copy of the Martech game too. The next twenty all correct cards will get their senders a Mega Apocalypse to play at home — and watch that your TV or monitor doesn't explode sky high!

All you have to do is —

1. **Name the programmer who wrote Mega Apocalypse**
2. **Name the rating CCI gave it**
3. **Name the game he wrote previously**
4. **Name 5 explosive substances**
5. **Name the biggest explosion you can think of (not necessarily on the Earth!)**

Answers, with name and address on a postcard please to Mega Apocalypse Competition, C/o CCI 40 Bowling Green Lane, London EC1R 0NE to reach us by January 30th 1988.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Summer Events

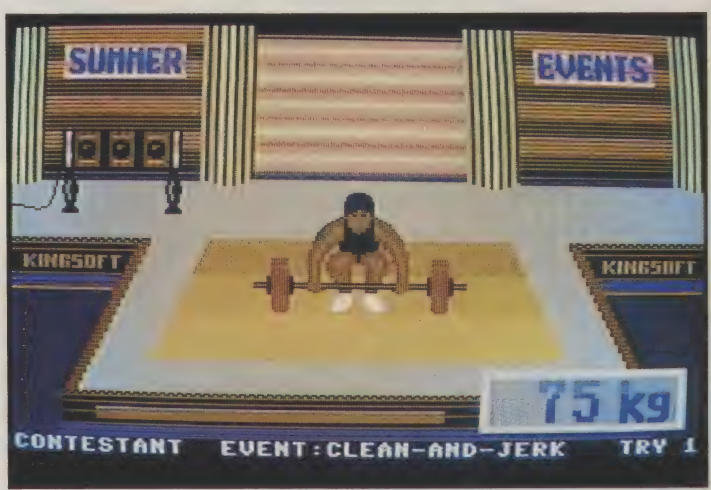
Summer Events — Anco

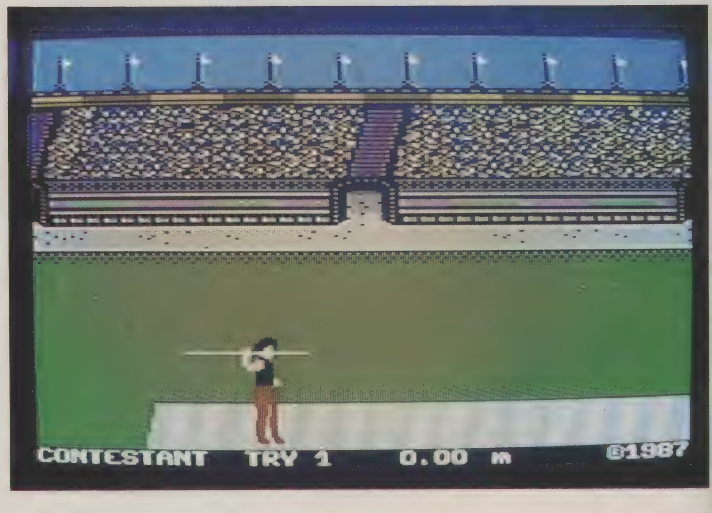
Can you believe it? It's here at last — after all this time, all the press releases, demo copies, all the hype, and now it's here! Is it worth the wait? Well find out right now, as I take a no-holds barred look at this follow up to the award winning Winter Events.

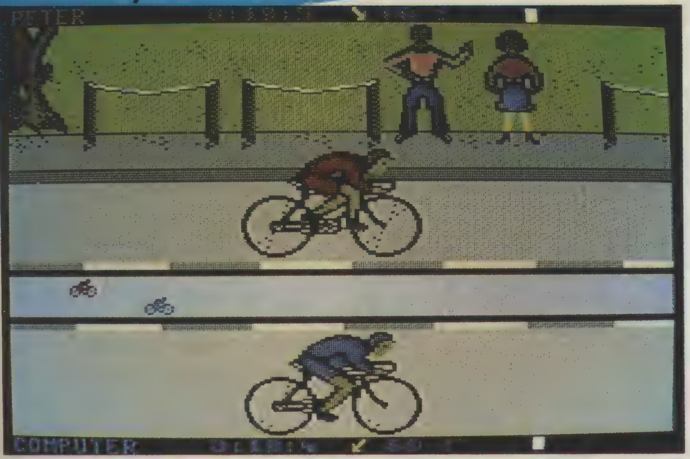
8 events have been mentioned but it looks like Anco have had trouble cramming all 8 in so one event; Kayaking has been dropped.

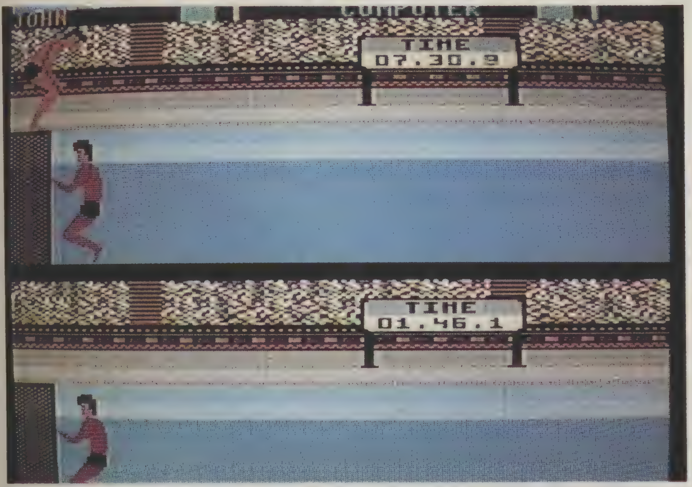
Firstly there is Butterfly Swimming. This event requires great timing and coordination — rather like Biathlon in Winter Event — and has some incredible animation as you try to beat your opponent, thrashing and pushing your joystick. You must put air into your lungs as well as stroke. This event is beautifully presented, with excellent graphics, and sound, and you can play against the computer or a friend.

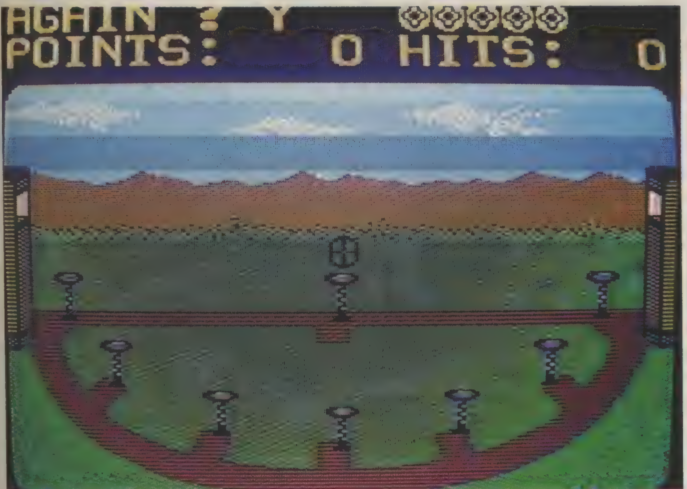
The next load, is the pole vault event and again requires great joystick dexterity as you try to get your man over the bar. You are first asked whether you want to jump at that height, you can decline and go for a higher jump, or you can try for that one. The graphics, again are impeccable and show what can be done with the right programming techniques.











Javelin, is one of the easier events on the tape, just bash the fire button as quickly as possible, to build up speed, then pull it to the left, get the right angle, and let it fly. Though not as graphically impressive as some of the other events, it's one of my favourites, because it's easy, and it's a pleasure to watch the javelin scroll through the air.

Skeet shooting is another of my favourites — it completely catches the feeling of shooting as clay pigeons (or should I say skeets?) You have 8 sights and each floats in the air and you have to fire from each sight in turn — some being placed in positions that make it easy to shoot the skeets, others in positions that make it difficult.

Platform diving is the next joystick buster, and again there are graphics of superlative quality. You must spin, somersault and splash your way to a medal, by doing one jump on a low platform and another on a higher one. All this is accompanied by some excellent music.

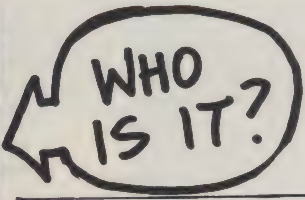
Cycling is the game with the best graphics of the lot. You must turn your joystick through 360° in time wih an arrow. Again you can play against the computer or a friend.

Weight lifting is excellent — in both graphics and sound — you must first do the 'two hand snatch' and then go for the 'clean and jerk'. Excellent.

No aspect or event on this tape has been skimped on, it's all round quality and excellence. The programmer Udo Gertz of Kingsoft has done it again and created a sensational game that no C16 owner will want to be without.

Price: £9.95 (c)
Graphics: ★★★★★
Sound: ★★★★
Playability: ★★★★★
Rating: Awesome

THIS IS THE LITTLE RED BOOK OF CHAIRMAN MIAOW!!



Who is this person and why is he/she trying to hide in the Ivy — which as everyone knows is a restaurant specialising in pubic — sorry — public relations affairs. And who cut his/her feet off? We have reason to believe he is an ex-journalist, because he/she can't afford a haircut. We suspect he/she has a desperate desire to make Headlines — which you might think is something that goes at the top of a page but computer people realise is really the name of a shadowy organisation that controls large slices of a terrorised press. They're quite gentle really. They just say things like "Print this picture or we'll send Simon (Mega Apocalypse) Nicol around to play with you." There used to be, as you will remember, a certain Lesley Headlines — no relation, of course. (Whatever happened to her?) According to some entirely unreliable rumours the ivy-hiding person is Simone Bristol-Cream, erstwhile wine and bloodsports correspondent for Computer Trade Weekly. Anyone supplying positive identification will receive a signed photo of Clement Chambers dressed as the third victim of Jack the Ripper.

Cut Off

What, I hear you cry, ever happened to a company called Activision? I frankly do not believe the rumours that they have been taken over by Mark Kale's International System Bangkok Travel Agency. But we do know that something strange appears to have happened to them. For, alone among UK software houses, they are impossible to reach on the telephone. They are reputed to have an answering service but they obviously don't get the messages because they never call back, no matter how important or urgent it is. Oh dear, all my fur seems to be standing on end. I do hope nothing nasty is going to happen to them like having picked up something unpleasant from visiting Thailand. Andrew Wight is appearing as the second to last Ninja in 'Ghostbusters' at the Southampton Rialto.

Leicester we forget

I have to reply to the billion telegrams I have received about the disappearance of Princess Krotoa from the masthead of this distinguished organ of the press. (What do you mean telegrams? They've been abolished years ago! Ed.) Sorry, I meant carrier pigeons, drum signals, Micronet chatlines, just let me go on with this story, please. Anyway, sadly, I have to report that Princess Krotoa is no longer with us. Why? Well, as anyone will tell you who lives in North London, the streets are now deadly quiet, not a mugger to be seen. The greatest vigilante the world has ever seen — she was to star in Gremlin's forthcoming Deathwish 124 got bored when the villains no longer appeared — I am not surprised she terrified everyone *here!* — so she went looking for trouble elsewhere. Like in an old-time western film, a town in terror sent for her and she went to do her duty. This time it is Leicester which appealed and packing her trusty teeth, the Princess hit the M1 trail. As you drive by — I believe no-one has ever stopped at Leciester by choice — I am told you can already here the plaintive cries of the frightened gangs of baddies. As you will note from the present CCI, the advertisers that the Princess used to give such a beating to are now crawling out from the woodwork. Anyway you can still see her in our T Shirt ad. No, not the one on the left. He's just one of her victims, screaming in terror with her finger poking his kidneys. We'll all miss you, Princess. For the first time we found out how lovely royalty can really be. (Sounds of sobs rises over CCI Towers and another advertiser telephones joyously to book space.)

Game for Anything

Exclusive! Scoop! I can exclusively reveal — how I love that phrase! — the release of a game that no other computer magazine has even heard of. It's true there has been a short mention in 'Crime International' but that doesn't count, does it? The story is called More Fee Us. It was written by the well-known pair of ace programmers Andrew Bribable and Steve Turncoat. You must remember they created the smash UGetridium. Well, they have created another certain hit. The scenario goes like this. You are a couple of programmers who wrote to an up and coming games house and sent them your first game. They publish it and later you write some more games which they publish with growing success. You come up with another idea and the games company goes ahead and advertises it and even sends a copy of the game to one unfortunate Commodore magazine that thinks that it has an exclusive. Then comes the really exciting part. You have to find a way to walk out on the first company that gave you your original break and then go to another company that is much bigger and can offer you much more especially if you can bring the new game with you. Can you do it? Can you find a method of overcoming your scruples betraying your friend and getting say 20 grand signing on fee? It's a really tough game but if you are brutal and selfish enough I'll bet you can play it and win. I think this game will shoot to the top of the Mafia Chart. I can give you a tip. Make sure you never actually *sign* a contract that means you can just walk out anytime *you* want. That tip comes to you courtesy of CCI's lawyer Snatchit, Grabbit, Stealit and Run. A follow up game called "Do it to them before they do it to you" is planned for early in 1988. Andrew Hewson was born yesterday and will be 97 next birthday.

SUPER FELIX A REAL KOOL KOMPUTER KAT!

Prize Winning Gams

I can now announce the results of my 'Great Gams in the Arcades Competition'. Don't tell me you missed that CCI! Shame on you! Well, the most beautiful legs seen in any arcade anywhere in the world were those on — No, not Toy Horgan, this is a thoroughly sexist comp and only *girls* were allowed — the body of Melbournatronic's gorgeous Marketing Princess Rachel (Tiny Tots) Davies. The dynamic Mastertronic of the Universe Queenpin's liking for these little sweets has nothing to do with Toyboy Horgan or other young playthings of that ilk but is related to an episode in her colourful past that I am forbidden to mention and of which will only tell you that an admirer, Fred 'Rough Trade' Fanta, a well-known lorry driver, presented her with — I kid you not — a whole transport container full — about 4 million boxes that fell off his truck as he passed her door. 4 million! That's a lot of Tiny Tots! Almost as many as the Mastertronic, Ricochet, Bulldog etc games that the hockey-playing Rachel ensures hit Woolies and Boots every week.

So how does your loving S.Felix know that Rach has the legs for the Prize? 'Cos I can exclusively reveal — in confidence you understand — that Ms Rachel is none other than — yes — Supergirl! Yes, folks, in the cause of research into Mastertronic's Arcadia video games productions she takes a quick jump into a convenient phone box and doffs (that means takes off, dummy!) her usual severe business suits and horn-rimmed spectacles, lets down her beautiful brown hair and dons (that's puts on!) an Arcadia Tee shirt which she stole from Toy Horgan and a leather mini-skirt and zips into the arcades, clicking her fingers and looking for action. There I can tell you her long slim gym-fit legs are a bigger sensation even than Roadwars. I understand Mastertronic are considering insuring them Marlene Dietrich style for at least a billion dollars.

The winner of our competition — who spotted the lovely-legged Rachel was not as he claims the Arcade addict Andrew Cash — he never looks up from the machines — it was a certain Sid Felix — no relation of course. He gets the first prize of a long cold glass of rum and condensed milk served in an empty Whiskas can. Not much of a prize? Shows how much taste you've got! This delightful concoction is to be drunk while playing the new Melbournatronic games for sophisticates Metropolis PC on Sir Frank Herman's private yacht — I think it used to be called the QEII — while sailing past the Bahamas in the company of none other than the ravishing Rachel. Ah it's a hard life being the judge of competitions . . .

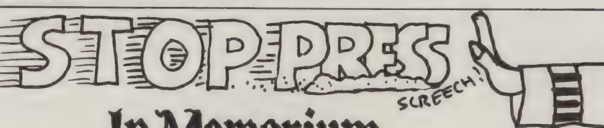
Next month's Competition — Guess how much the finder of the said Rachel's recently lost Filofax was paid not to reveal the names and dates of certain appointments it contained and exactly what the classifications Naff, Iffy, Crisp, Mega and Awesome meant when applied to a certain rugby team located not a million miles from Sutton and Cheam.

Party Peace

Our Sacred Editor is floating on air — quite an achievement for a gent who weighs 200 kilos. He came back from the PCW Show totally overwhelmed. No, it had nothing to do with all that boring software and secret new computers that I'm not allowed to tell you about. It was the super super parties at which all the important people in the computer world — tous le monde or tous Paris — as they used to say in Hoxton — attended. There was the marvellous US Gold affair starring Big Tim Chaney who created such a stir that he was supposed to have been offered a contract to appear on a TV show instead of Bob Monkhouse. There was the Scottish Party thrown by Martin Lowe of the Edinburgh Amiga Centre at which Byte by Byte's Scott Petersen revealed so much about Commodore that the next day he was flown back across the Atlantic. But the biggest and most glamorous bash was thrown by Telecomsoft's hostess with the mostest Paula Byrne. O.S.E. was overwhelmed by the sheer starry glitz of the whole thing and acclaimed it the Party of the Show. Maybe he was impressed by the drama of seeing Sir Clive Sinclair throw himself at the feet of the most holy Sister Jane Smith. Sir Clive was clearly overcome on the dance floor by the sheer elegance of the neat little see through habit the holy sister was nearly wearing. It should cause quite a sensation when Sister Jane goes to Latin America where the Pope has asked her to travel through the whole continent to discover what is troubling the natives and satisfy their needs. O.S.E. has asked Sister Jane to send regular reports on her religious experiences. Certainly life is turning into just one success after another for Telecomsoft's dynamic Suprema Paula — The 'Joan Collins of the Computer World' as the assistant editor of 'Punch' called her. Guild of Thieves wins Best Game of the Year B.T. shares are on the up and everybody adores her party. It's really terrible there's absolutely nothing nasty to say. I feel quite ill.

Oriental Arts

I can exclusively reveal that Electronic Arts is not after all taking over the world. Nor, I am given to understand by the most reliable sources, is the concrete and onyx structure that it had erected for the PCW Show — designed by Owings, SkidmoreMies van der Rohe and Frank Wright — to be sent to Egypt to replace the Pyramids which the tourists are wearing out by moonlight. How do I know these sensational denials? O.S.E. was in conversation with none other than Mark Lewis EuroBoss of E.A. who told him that Electronic Arts was devoting its resources to other projects. When pressed the dashingly hirsute Mark confessed that E.A. had merely taken out a license on Japan until the end of the century. A lot of deep sighs of relief are going to be breathed by software companies around the world at the revelation of such a modest scale of ambition. After all, it could have been China. Just imagine a billion Chinese all singing "The Story of the Long March" to the accompaniment of Instant Music, going absolutely rice and bananas with Marble Madness or colouring the whole country red with Deluxe Paint II. Sayonara will be released on 3½" Disk when the plum blossom blooms, priced 2 billion yen or five million florints (What the hell is a forint anyway?) Clement Nexus is Friday the 13th and an affiliated label.

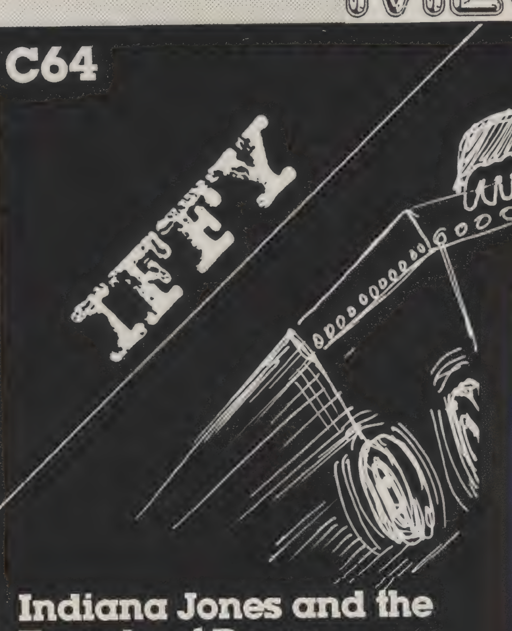


In Memerium

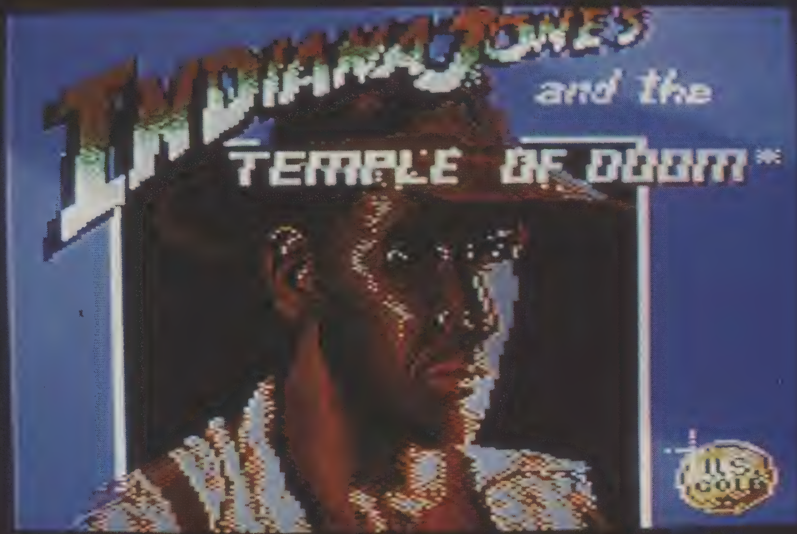
OH MY PAWS AND WHISKERS! WE'VE DONE IT AGAIN! THE HORRIBLE CCI CURSE HAS STRUCK POOR ANDREW - JUST WHERE IT IS MOST PAINFUL - IN THE WALLET. HE'S DEPARTED THE NON-TELEPHONE ANSWERING ACTIVISION. HE APPARENTLY WASN'T 'RIGHT' OFTEN ENOUGH. I'M SURE THE RUMOUR HE'S TO START A GAMES HOUSE (WITHOUT A PHONE OF COURSE) CALLED PASSIVEVISION IS ENTIRELY UNFOUNDED. OH DEAR ... THAT CURSE ... I WONDER WHO'S NEXT ...

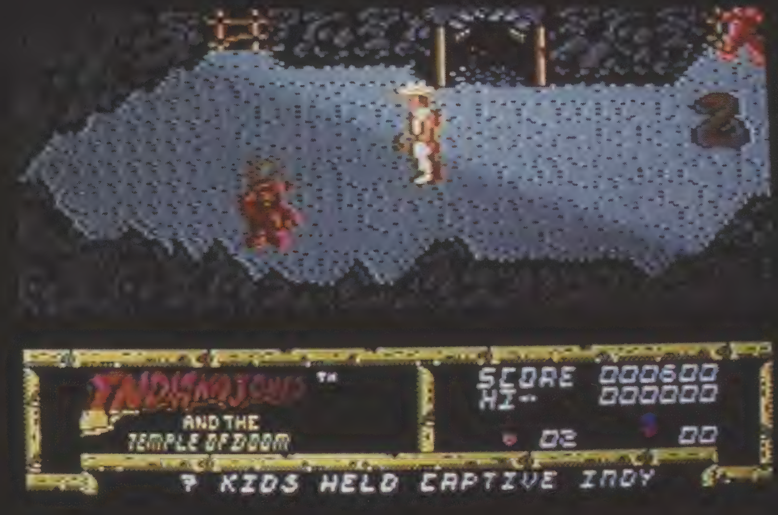
SEE YOU NEXT MONTH FOLKS!! (OR WILL I?)

C64



Indiana Jones and the Temple of Doom — US Gold





You would think Indiana Jones, one of the most action-packed films of recent years would make an excellent computer game, with all that whip cracking and baddie bashing. Unfortunately, the great coin-op game of the film has been poorly translated.

The 'adventure' starts on a rocky cliff where the horrible thuggees have imprisoned some kids in cages dotted around the ledges on the cliff. Being a good guy, you decide to set them free with a sharp crack of the whip to the cage lock. As always there are the baddies who will accost you unless you show them who's boss with your whip. As you explore the cliff, rescuing kids, the screen scrolls a little jerkily in one of four directions.

This stage is good fun in the arcade version, but this version is lacking in playability, for a reason I can't put my finger on.

Reaching the top of the cliff, you enter a mine shaft. As far as I remember, the shaft on the arcade version led down and to the left. Commodore gamers get an opposite view. Leaning your coal-truck, you race along the shaft, avoiding dead ends, breaks in the track, and the thuggee guards. The scrolling starts of smoothly, but jerks badly at higher speeds. At the end of the line, is the start of the third and final stage.

This final stage takes place over a small scrolling area which consists of a firey pit guarding three doors. The idea is simple, just whip the guards, swing across the pit and escape through the open door.

Completion of all three stages takes Indy back to the beginning, but with more hazards.

Apart from the unexciting gameplay, Indiana's main drawback is its multi-load. Yup, the multi-load of doom strikes again. My review copy was on disk, and so wasn't too bad, but I can imagine a tape version all too well.

Graphically, Indiana varies from fairly good with attractive sprites on the first stage, to poor sprites and backgrounds on the second which improve on the third.

Unfortunately, almost as soon as the game loads you'll be reaching for the volume knob to get rid of the irritating and awkward arrangement of music from the film.

Indiana Jones is yet another disappointing coin-op conversion which should have turned out a lot better. It's not terrible and can be enjoyable in short periods, but proves too boring for long term play. If you're a particular fan of the coin-op, you could find this worth your while, but be prepared for a bit of a disappointment.

B.V.

Price: £9.95 (c) £14.95 (d)
Graphics: ★★★
Sound: ★★
Playability: ★★★
Rating: Iffy

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TAKE CONTROL!!!

Once upon a time, you sat at the keyboard and played it like a piano. Cursors and the keys you pressed pushed your sprite around the screen. You were a computer freak who knew the qwerty like — well the front of your hand.

Then some bright spark said "Hey man, Eureka!! What we need is not something to type in like my sister the secretary . . . we need something to grab and wrench and twist and bash . . . We want to drive this thing like a plane . . . Dive bomb the aliens! Shoot up the enemy! Blast away the foe! Typing is too damn slow, too damn clumsy! Gimme something that moves! Speed! Accuracy!"

So they brought in a trakball. "This is a control device used for professional design packages."

Yuk! No way, man. We need something to bash. You can't bash a trakball.

They trashed the Trakball.

Then they brought in the joycard. "This is a very sensitive control device. It can be used for delicate movements."

Oh no! Delicate movements? It's got to stand being squeezed, clenched, clutched, pulled, pushed, torn about, thrown about, even kicked and stamped. Delicate movements? No way, man!

They binned the joycard.

So what do you want, then? They asked.

Joy!! You bellowed. And a stick to grab it with!

A JOYSTICK! You screamed. A JOYYYSTICKKKK!!! A NEW JOYYYYYYSTICKKKKKK!!!!!!

So they designed them. In grey and in black. Transparent and opaque. Micro-switched and double-buttoned. Tall and short. Tall and fat. Squat and stubby. Short and tough. Made from metal and plastic and kryptonite. Indesstructaball! They even announced it under the bombardment of Elite, Uridium, Mega Apocalypse and the atomic bombs that fell on Hiroshima and Nagasaki combined. Of course, they said, that's nothing. It will do all that and more. Much more! And it only costs £5 . . . £10 . . . Give us £14.95 and the world, the shooting game universe is yours. Oh well, we said, let's give it a try . . . Maybe a new joystick will make us into arcade champions, we can make the UK team . . .

CONTINUED...

THE CRUISER

Leisuresoft — Price: £9.95

The Cruiser is the cheapest joystick reviewed here (excluding the Wiz Card). It's designed primarily for table-top use with four suckers on the bottom, although it can be hand-held. The two buttons and the stick are micro-switched. An unusual feature of the Cruiser is the adjustable stick tension.

When on a surface, the Cruiser performs very well, and it's pretty good in your hand. The buttons and stick feel firm and responsive, and the red, white and blue colour scheme is attractive.

For ten quid, the Cruiser is remarkable value, and although there are better sticks, it has to be near the top of your joystick list.

Looks: 8
Comfort: 8
Accuracy: 8
Overall: 8

ELITE

Euromax — Price: £15.95

The Elite is a relatively small joystick with not much base to grip. The fire button sticks out at the front. Between the stick and the button is an autofire button. The stick is micro-switched, and is accurate with diagonals.

Whilst the Elite is good to look at, the small base might make it slightly uncomfortable to hold for long periods, but it is probably very well suited to smaller hands.

Looks: 8
Accuracy: 9
Comfort: 3
Overall: 7

MICRO-HANDLER

Euromax — Price: £24.95

This is one weird joystick! It is a large table-top design, with steel casing. The stick is on the right of the unit, and is micro-switched, as are the two buttons on the left. In the centre are three knobs. Two act as paddles, and the other is a speed control for the autofire.

The Micro-handler give a first impression of being very sturdy, but after some use, the stick tends to squeak and crunch, and feels more breakable. The fire buttons are stiff at first, but loosen up after a while.

This is a well designed stick with only minor flaws, and is definitely worth considering.

Looks: 7
Accuracy: 8
Comfort: 8
Overall: 8

SPEEDKING

Konix — Price: £11.99

Konix have put a great deal off effort and thought into the original design of Speedking. It is highly ergonomic, i.e. made to fit the hand more than just look attractive. It is however a really good looking joystick with a distinctive red and black colour scheme. The stick and the fire button are both microswitched.

The Speedking feels very comfortable, though rapid fire over a very long time might just cause a finger cramp. The stick has fewer definite corners which could perhaps make diagonals a shade tricky.

This highly original joystick was so different initially that it might not have turned out to be everyone's cup of tea but in fact it feels very strong and must be credited for its originality. It has already sold millions to satisfied users around the world. Speedking has just be reduced by a pound in price and comes bundled with Gremlin's "Thing Bounces Back" which must make it excellent value.

Looks: 9
Accuracy: 7
Comfort: 8
Overall: 8

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TAC 3

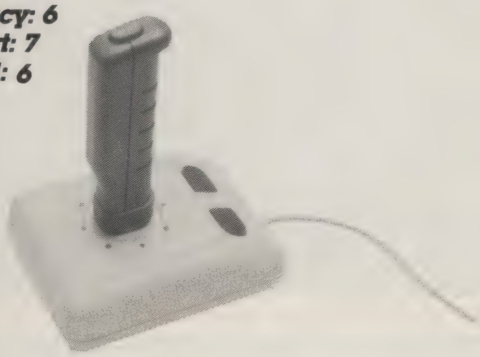
Suncom — Price: £12.99

Suncom's Tac 3 has a grey stick, beige base, and three buttons, one on the stick, and two on the base. No micro-switches here, the buttons have a definite and agreeable click, but the stick feels a little dead.

These joysticks that only need one hand can be very handy for games that use the keyboard and joystick, but this isn't really a standout one. The colour scheme is unexciting and could do with brightening.

At £12.99 it's relatively cheap, but I haven't found it always performs that well in the tighter spots.

Looks: 4
Accuracy: 6
Comfort: 7
Overall: 6



PROFESSIONAL

Euromax — Price: £15.95

This is a variation on the classic Kempston design. It is micro-switched all-round with two fire buttons to suit left and right handed players.

The Professional has excellent feel to it, and is the most accurate of the lot, with a good definite diagonal corner, and fire buttons resembling spangles, which fit the finger well.

It feels strong, accurate and won't let you down when you're relying on a decent stick.

Looks: 8
Accuracy: 10
Comfort: 9
Overall: 9

WIZCARD

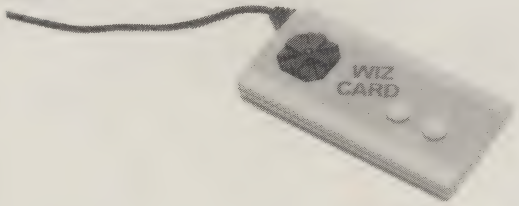
Euromax — Price £4.95

This isn't a joystick as such. It's very similar to the controllers supplied with the Nintendo and Sega consoles. It consists of a small pad and two buttons on a slim 'card'. The pad is tilted in the appropriate direction, as you would push a joytick.

The Wizard is fiddly and not very accurate to use. Diagonals are very hard to get, making games such as International Karate virtually impossible to play.

Taking its price into account, the Wizard is not that bad, but as always you get what you pay for.

Looks: 6
Accuracy: 3
Comfort: 5
Overall: 5



MICRO ACE

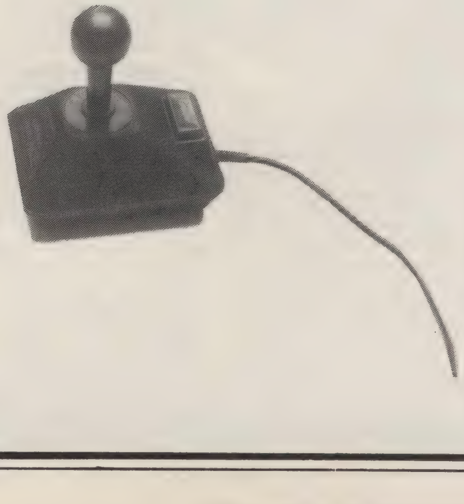
Euromax — Price: £12.95

The Micro Ace has a pyramid-shaped base with a wide button at the front. The stick is micro-switched, but not the fire button.

The corners on the base tend to dig into the hand, making it uncomfortable to hold. The stick feels good and is fairly accurate, but the button has a very dead feel, with no click to signify a press.

This is not a bad stick, but is let down by the button and its sharp(ish) corners.

Looks: 7
Accuracy: 8
Comfort: 5
Overall: 7



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Amazing new product!

WISP offers you a refreshing new way to operate your PLUS 4. WISP stands for Windows Icons Silicon-disc Package. It is packed with many powerful features. Everything in your new operating enviroment is run through windows — just like on very expensive computers. Built in window facilities include a) calculator b) silicon disc c) note pad d) directories e) fast load and save f) error trapping g) programming windows.

Windows may be closed and neatly stored as icons. A smooth sprite is used to select the windows you wish to use from the pull down menus.

With the silicon disc you can instantly save, load and directory — all in under half a second (much faster than even a disc drive!).

The fast load and save to cassette is about ten times normal speed! We have never before sold such a feature packed program to give you power to control your computer to its limits. The ultimate programming environment. Incredible value. Plus 4 only. Cassette — **£9.95** Disc **£14.95**.

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We have black cat 2 in stock and waiting to be despatched to you! Have you ever wanted to use your PLUS-4 Wordprocessor, Spreadsheet, Business graphics etc. with a cassette unit? This program allows you to save your files to cassette rather than disc (as forced to by Commodore).

Version 2 incorporates a FAST load and save system so you can save your files to cassette at disc speed! Quick, convenient, easy to use. Only **£5.95**

THE MIRROR-TAPE BACK UP

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Make full use of your disc drive by effortlessly converting many of your games/software to disc. We have had many letters telling us how much people appreciate this utility. Excellent value — supplied on disc — **£12.95**

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Have you ever wasted time waiting for your programs to load or save? PHOTON LOAD, the new cassette operating system loads in seconds and allows you to load and save your programs at about TEN times the speed of a normal load or save. Why spend money on a disc drive when you can load and save this fast. Great value **£7.95**

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This extremely clever utility allows you to use 8 sprites simultaneously over a low-resolution screen. With this program you can now imitate the sprites found on the Commodore 64! A complete package with FREE demo programs and a FREE sprite designer. What more do you need to bring real power to your games on your C16/PLUS 4. A must for games programmers. Excellent value — Cassette **£7.95** Disc **£9.95**

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If you have a Commodore 64 cassette unit which you would like to use with your C16/PLUS 4 then you need one of these. Just plug in and go! — Only **£5.95**

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Become invulnerable! Action Replay V.3 now has a SPRITE KILLER. Play weird games! The unique SPRITE MONITOR lets you save sprites from one game and load them in another! The mind boggles!

Nothing else offers all these features at this price!

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MK3
ACTION REPLAY

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Fully compatible with Commodore 64, 64C, 128 and 128D in 64 mode, 1541, 1541C, 1570, 1571 and Enhancer Drives, CBM compatible tape recorders, FastDOS, and Turbo ROM—can the others say that???

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This is the way Commodore should have their DOS. Single keystroke commands: e.g. LOAD and RUN straight from directory, and much, much more! Works with all drives: 1541, 1570 and 1571.

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Action Replay V.3 will back-up ANY program which ANY other cartridge can—and much more! It also has unmatchable features. For instance, 'Freeze Frame' uses more disk space, saves SLOWER, has a SLOWER tape loader and has NO built-in disk fastloader, NO picture, NO Sprite, NO restart-features, yet costs £10 more!!! So, come on, who's kidding who? If Action Replay V.3 doesn't live up to our claims, return it within 7 days of receipt and you can have your money back!

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TAKE CONTROL!!!

COMPETITION PRO 5000

Dynamics — Price: £14.95

It's hard to beat the design of the Competition Pro. This version has a micro-switched stick, with two buttons that have a good feel to them.

The base is large and comfortable to hold, with an accurate stick. Considering this is a pound cheaper than Euromax's Elite Autofire, it comes out at pretty good value. This is strong, good looking and still comes good around five years after its original design.

Looks: 8
Accuracy: 9
Comfort: 9
Overall: 8

TERMINATOR

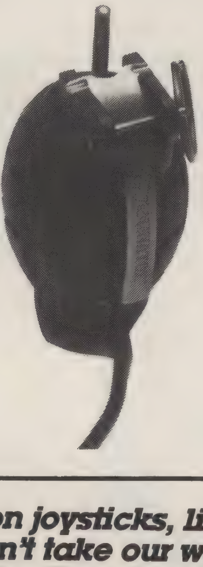
Robtek — Price: £19.95

Here's one for all you Rambo's out there. The Terminator looks just like a hand grenade, it's even got a pin! A short metal shaft sticks out the top, with a metal strip on the front acting as a fire button. Both stick and button are micro-switched.

The Terminator's strongest point is without doubt its looks, as it proves awkward to hold, and the button is easy to press by accident.

One for Commando, Rambo, Gryzor etc. for added realism. Just make sure you don't get carried away and lob it out the window!

Looks: 9
Accuracy: 7
Comfort: 7
Overall: 7

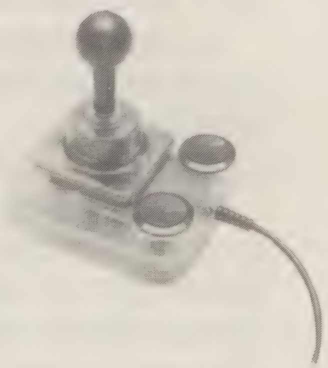


COMPETITION PRO 'CLEAR'

Dynamics — Price: £15.95

This is exactly the same as the Competition Pro, but with a clear case, which makes it very attractive.

Looks: 10
Accuracy: 9
Comfort: 9
Overall: 9



COMPETITION PRO EXTRA

Dynamics — Price: £16.49

The Extra is the top of the range, de-luxe version with micro-switched buttons, auto-fire, and a switch that works on a similar way to auto-fire, but makes your spaceship, man, or whatever move slowly. An original feature, but I can't think of many applications for it.

The addition of auto-fire and micro-switched buttons (just like those on Combat School) make this my favourite of the lot.

Looks: 10
Accuracy: 9
Comfort: 9
Overall: 9

Judgement on joysticks, like the steering of a car, are very personal opinions. Don't take our word for anything! Grab them yourself and give them a try. Demand from your dealer a test, lots of tests. Our ideas of what makes a joystick great may not be yours. Just use our ratings as a guide for your own judgement. Now how about this new joystick, man, feel good?

Charts

A couple of real breakers this month — Ocean's Renegade jumps right into the number one spot and Bubble Bobble enters at number two. Road Runner slips from last month's top place. Martech's Mega Apocalypse comes in at seven and Red Led at ten.

A new number one for the budgets is Power of Love film hit Back to the Future with Players' Joe Blade coming in for the first time.

Our first Amiga Chart leads off with Psygnosis' impressive Terrapods and long-time favourite Defender of the Crown holding number two. Rainbird's British Micro-Federation game of the year winner Guild of Thieves looks likely to move up.

C64

	GAME TITLE	COMPANY		Price (£)	Rating
1	Renegade	Imagine	★	8.95	Crisp
2	Bubble Bobble	Firebird	★	9.95	Crisp
3	Road Runner	U.S. Gold	↓	9.99	Mega
4	World Class Leaderboard	U.S. Gold	↓	9.95	Mega
5	Ace 2	Cascade	↑	9.95	Awesome
6	Epyx Epics	Epyx	↑	9.95	Mega
7	Mega Apocalypse	Martech	★	9.95	Awesome
8	Wizball	Ocean	↓	8.95	Mega
9	Pirates	Microprose	→←	14.95	Mega
10	Red Led	Ariolasoft	★	8.95	Mega

Budget Chart

1	Back to the Future	Firebird	1.99
2	Kikstart 2	Mastertronic	1.99
3	Run for Gold	Alternative	1.99
4	BMX Simulator	Codemasters	1.99
5	Joe Blade	Players	1.99

Amiga Chart

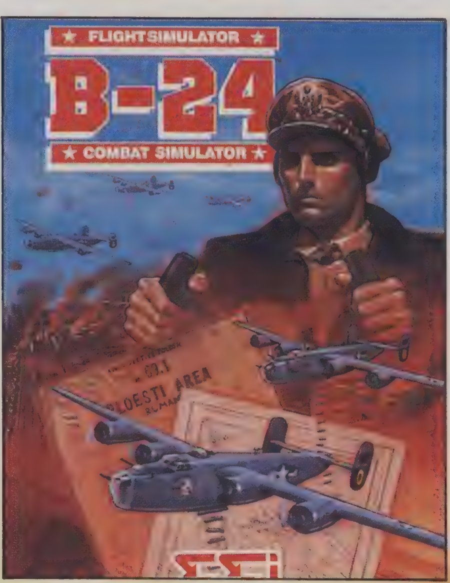
1	Terrapods	Psygnosis
2	Defender of the Crown	Mirrorsoft
3	Goldrunner	Microdeal
4	Guild of Thieves	Rainbird
5	Challenger	Anco

★ NEW ENTRY.

SEVEN NEW MIND BLOWING SIMULATIONS FROM

STRATEGIC SIMULATIONS INC

From the world's greatest creator of simulation software comes a further collection of outstanding challenges. Relive some of the momentous struggles that have changed the course of man's history; escape to worlds of fantasy and mystery where lies the unknown or create your own encounters played out in time and place of your own choosing. These are the challenges in which you take complete control.



B – 24
From the war torn skies of World War II emerged one legendary offensive weapon – the B – 24 bomber. This superb simulation allows you to recreate the exploits of this great aeroplane on single mission runs or a 19 mission campaign to destroy oil refineries in Ploetsi, Rumania.
As pilot you control the mission flight on a bombing raid from your home base in Italy; as group leader you command 40 B – 24's on bomb runs to 14 targets deciding on when and where to bomb depending upon weather, plan availability, group efficiency and target oil production levels. A flight and combat simulation of unparalleled quality.

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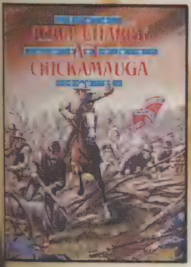
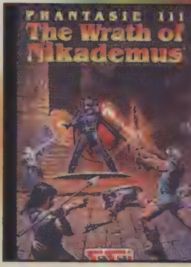
Disk **£19.99**

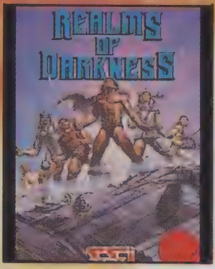
B – 24
"The most realistic flight simulation you're ever likely to experience"



REBEL CHARGE AT CHICKAMAUGA
is the definitive simulation of the South's last major offensive thrust – the Battle of Chickamauga. The game faithfully recreates the two-day battle to give you the opportunity to try and repeat or reverse history.
APPLE, ATARI, CBM 64 £24.99 Disk £29.99 IBM



PHANTASIE III – THE WRATH OF NIKADEMUS
Promises a spell-binding story-line with enough twists and turns to satisfy your wildest fantasies. This time the Dark Lord Nikademus has set his evil sights on conquering not only an island, but the entire world.
ATARI, AMIGA £24.99



REALMS OF DARKNESS
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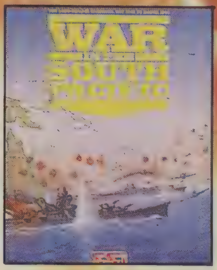

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Three exciting scenarios from the history making land, sea and air campaigns of May 1942 to March 1943.
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BATTLE CRUISER
WORLD WAR II

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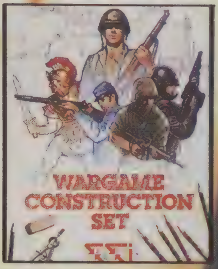

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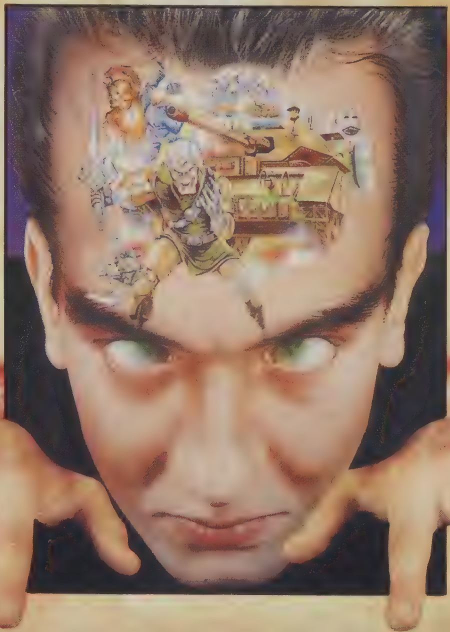

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"NIGEL MANSELL'S GRAND PRIX" is ready to take you and your computer into the fast lane of game excitement. As well as capturing the speed and adrenalin pumping danger of the world's greatest sporting spectacle, the game is the first racing simulation to reflect some of the enormous advances in car design and technology that have taken place recently.

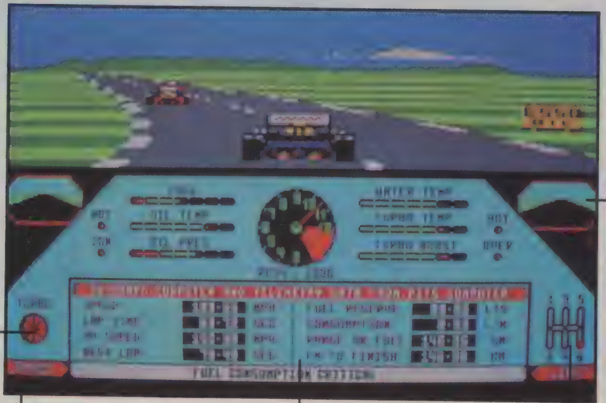
And yet the game still offers an excellent opportunity for even the most inexperienced novice to blast round the track at excessive speeds with the turbo on maximum boost and not a care in the world for fuel consumption, tyre wear or racing line. However, for those who know, or want to know a little more, there is an opportunity to race a selection of the world's greatest circuits in the quest for valuable championship points.

The red lights are on – *you snap into gear.*
The engine roars – *your grip tightens on the steering wheel.*
The crowd goes wild as the lights flash to green.
900 brake horsepower is suddenly unleashed and the Williams hurtles to the first bend.
Ahead of you lies 31 weeks of the world's most gruelling and spectacular sporting championship.

(Technical Consultants – Nigel Mansell, Peter Windsor, Williams Grand Prix Engineering Ltd.)

Nigel Mansell celebrating victory.

Just over half the race completed and you're lying second to your main rival – 0.8 seconds ahead of you.



Your pit crew are in constant contact with you throughout the race.

Correct gear selection is vital.

Use your Turbo for extra power – but watch that fuel.

This panel gives you vital information on your race performance.

Wing mirrors. No sign of the third place car yet!

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What Poke?

If you've taken advantage of our tips page, you'll be glad to hear of H & D Services' What Poke? booklets. H & D publish three of these booklets; two versions of What Poke?, one for the C64 and the other for the C16/Plus 4, and an adventure handbook. These booklets contain reviews, hints, pokes, maps and other items of interest.

The What Poke? series aims to offer an alternative to the majority of straight computer games publications. They come out every month, the adventure version selling for £1.50 and the others for £1.00. I can recommend them to anyone who enjoys a quick poke. (Oh dear, what have I said?)

Here's an extract from the 64 What Poke? booklet.

Delta:
Load and reset on the title screen before entering the following pokes.

POKE 5693,(0-255) (RETURN) for the number of lives you want for one player option.
POKE 5671, (0-255) (RETURN) number of lives for both players.
POKE 15834, (0-255) (RETURN) for infinite lives.
POKE 15834,173 (RETURN) to keep any acquired weapon.
SYS 6000 (RETURN) to start.
The game must be played with the music or it will crash.

Contact:
H & D
1338 Ashton Old Road
Higher Openshaw
Manchester
M11 1JG

HORGAN'S HINTS

Yes! It's here, the page you've all been waiting for; this month sees the introduction of (cue drum-roll and fanfare) a playing tips section! Every month from now on we'll be giving you the chance to leap tall buildings in a single bound, save the universe in indestructible spaceships, and beat up the hardest of black belts. However, all this can only be possible with your help. Send any tips, pokes (preferably with no reset required), maps etc. to Horgan's Hints, CCI, 40 Bowling Green Lane, London EC1R 0NE. Now on with the tips...

C64

Our first set of pokes comes from Malcolm Murphy of Wigan.

Space Harrier:
To have automatic destruction of all destructable objects, simply reset the computer after loading and type: **POKE 6666,234 (RETURN)** then **SYS 2128 (RETURN).**

I, Ball:
Infinite lives can be yours for the paltry price of one poke! How? Load, reset, and type **POKE 20669,238** then **SYS 4096,** and hey presto!

Gauntlet:
Tired of being scared of ghosts, fooled by sorcerers and splatted by lobbers? Simply load, reset, and type **POKE 49009,96 (RETURN)** followed by **SYS 32768** for hassle-free treasure hunting.

Firetrack:
Track that fire slaughter those aliens, and know no fear with the aid of these pokes. Load, reset and type **POKE 12285,234:POKE 12287,234:POKE 12286,234** followed by a swift **SYS 9216** to start the game.

Mutants:
Those little blobby ones that follow you about can be very tricky. You can now have as many bites at the mutoid cherry thanks to these pokes. Load, reset and type **POKE 9273,234:POKE 9274,234. SYS 4096** starts the game.

The following tips are from Mark O of New Eltham.

Oink:
Pig out on these infinite pimples/rubbish men/ thugs pokes. Load, reset and type **POKE 31991,227:POKE 39923,227:POKE 47774,0 (RETURN)** then **SYS 16384** to restart.

Westbank:
Those dog-gone no-good bank robbers gettin' yer down? Try this unlimited poke for size. Load, reset and type **POKE 12712,165 (RETURN)** and **SYS 4100** to get going.

Jeep Command:
M*A*S*H those nasties and leap those potholes with confidence. Load, reset and type **POKE 32627,241:SYS 16384 (RETURN)** for unlimited buggies.

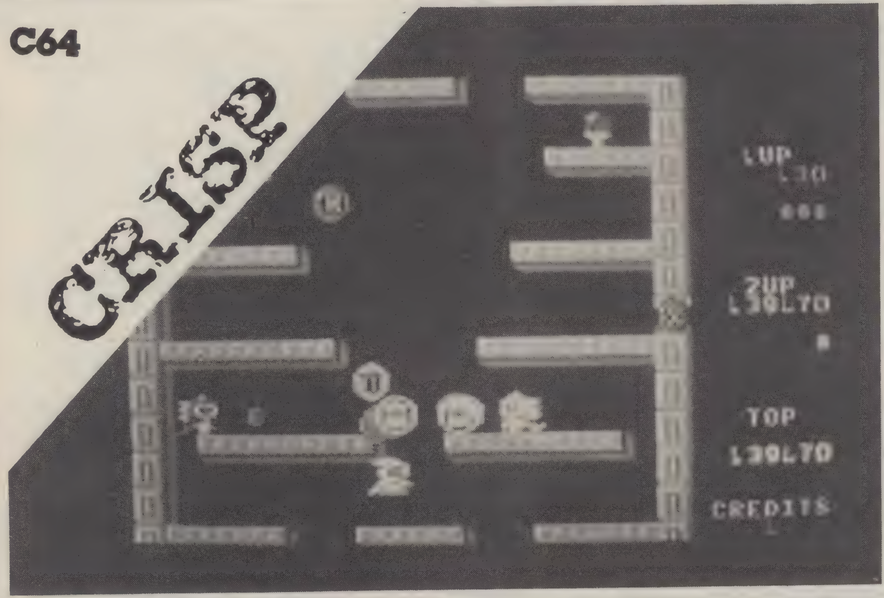
Nemesis:
Getting some stick from the enemies? This should sort them out. Load the game, select four players and press left shift for immunity to bullets and backgrounds.

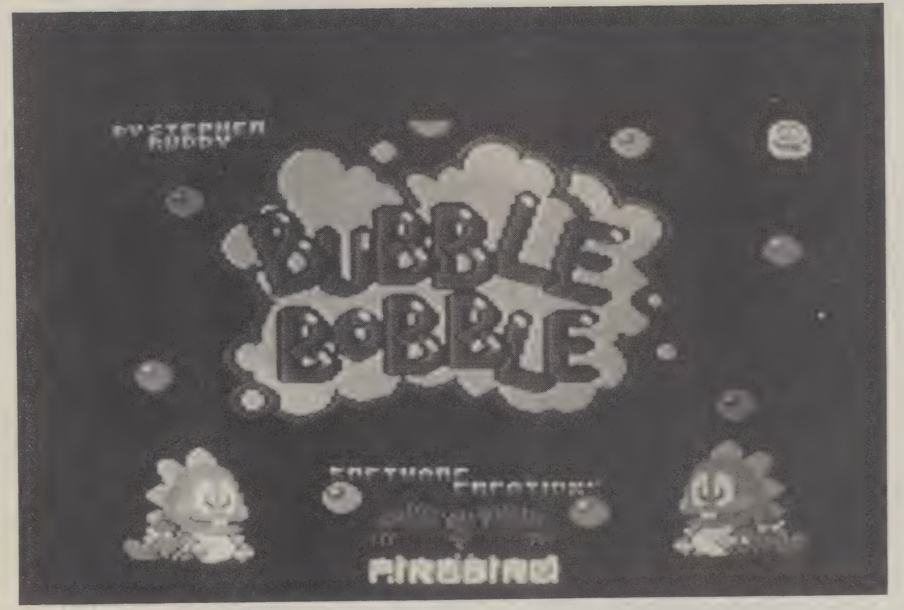
Future Knight:
Are you not the knight in shining armour you'd like to be? Hold down keys **BUG87** for unlimited knights.

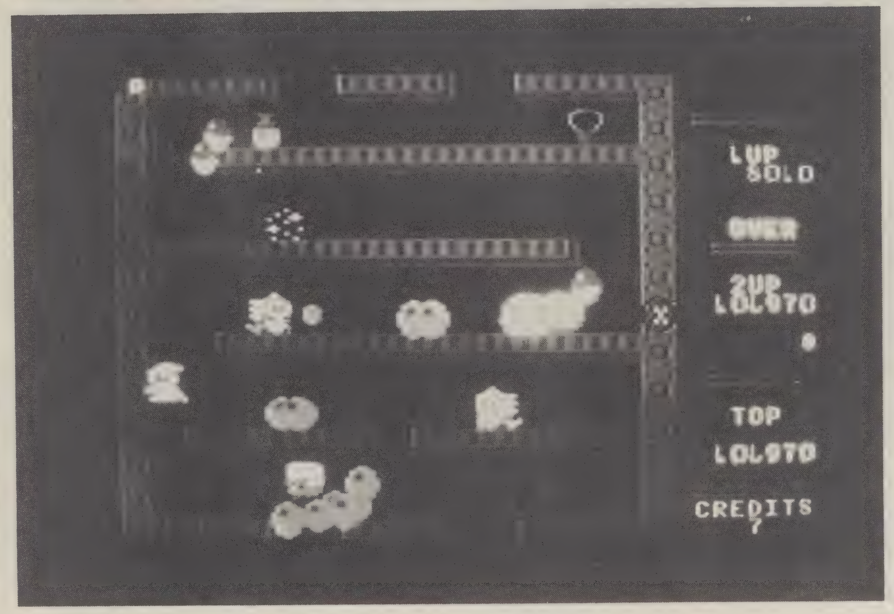
180:
Hear that digitised cry of "180!" three times in one game, in other words a nine dart finish, by holding down rght shift and the space bar.

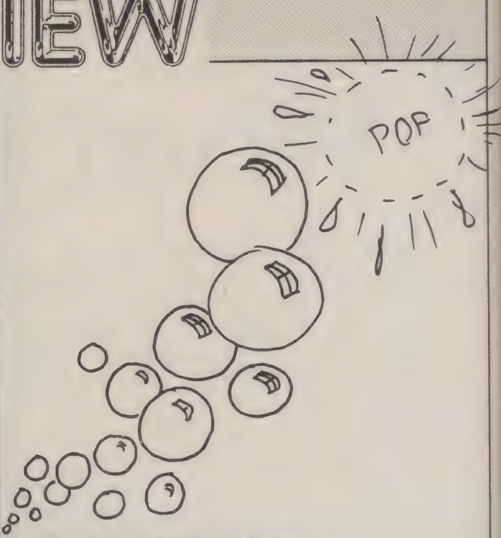
Due to lack of space, we were unable to print all the tips we received, but keep them coming and we'll do our best to include as many as possible, and remember, there's a CCI T-shirt for all those printed, and the best gets a T-shirt, £10, and a free subscription. Tip of the month this month goes to Malcolm Murphy for his Space Harrier poke.

C64









Bubble Bobble — Firebird

Bubble Bobble is one of the current arcade hits which seems more suited to home computer conversion than Out Run or other such mega-games, as it relies more on playability than graphics, sound and the like.

Bub and Bob are two midget dinosaurs who don't breath fire as you might expect, but blow bubbles instead. In their quest for their girlfriends, these two must rid 100 screens of various nasties.

Each screen is made up of a pattern of platforms. The nasties patrol the platforms and will kill Bub or Bob on contact. To get rid of these, blow a bubble in their direction, and if they're close enough, they'll float helplessly up the screen, trapped in your bubble. Jump at the bubble, bursting it, and the nasty will be sent spinning, leaving behind a bonus item.

Some bubbles appear containing water, fire, or lightning which wash, burn, or zap out the meanies.

As you would guess, Bubble Bobble is best played in simultaneous two player mode. It also makes the game a fair bit easier to play.

This is a simple game, not that different from Bomb Jack, and is well programmed with attractive graphics, a catchy if not techically outstanding tune, but it's a little too simple for my liking. Fans of the arcade version will definitely find this a conversion worthy of their ten quid, and will also appeal to a good many others.

T.H.

Price: £9.95 (c)
Graphics: ★★★
Sound: ★★★
Playability: ★★★
Rating: Crisp

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IMPACT

Audiogenic Price: £14.95

The Amiga is one computer that doesn't have a wealth of Arkanoid games. The only existing one that comes to mind is is Anco's Demolition. That is about to change with the release of Impact, and the official Arkanoid due to hit the streets before the end of the year.

Audiogenic's Impact is one of these Arkanoid lookalikes. Set in a 1970's arcade machine, you must escape through the 80 screens of multi-coloured bricks and strange creatures. Controlling the usual bat, you bounce the ball off the bricks, collecting tokens that drop down. Catching one moves the add-on indicator one place further.

There are no big differences between Impact and most other Arkanoid clones except for the construction kit which allows user-defined screens. One original in-game feature is the way the ball's position on the bat can be chosen before the first shot or after catching it.

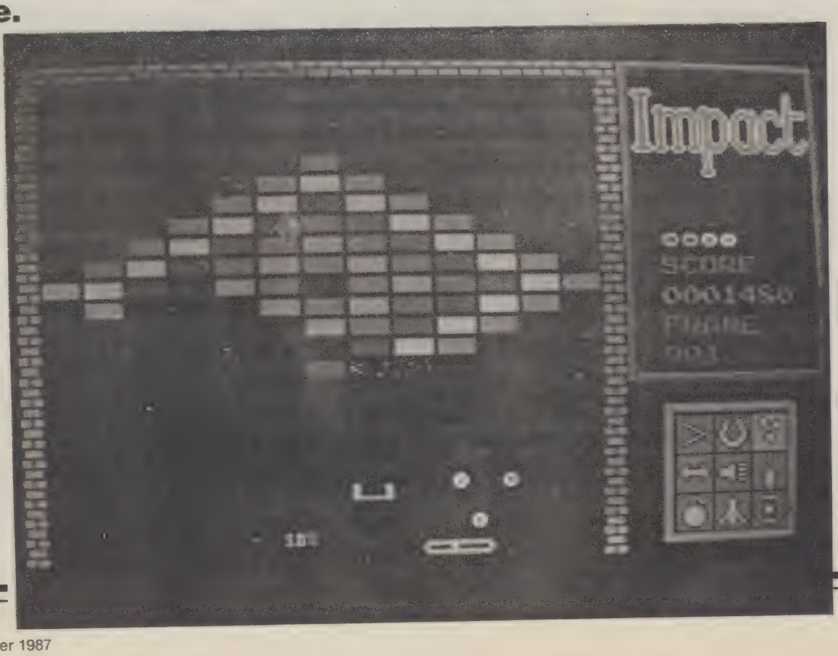
As each brick is hit, a melodic chime is emitted, and combines with the other excellent digitised effects to make a kind of music.

The sprites are detailed, but small, and the overall graphic effect is neat, simple and agreeable.

The inclusion of a screen designer is a good idea, and will add to long term enjoyment.

Impact is probably as good as any Arkanoid game can be, but I can't help feeling I've done it all before. Nevertheless, Impact is a great game in its own right, and deserves attention even from those in possession of an Arkanoid style game.

T.H.



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MEGA

Jack the Nipper II — Gremlin

Jack was such a trouble maker in his last game that he was deported to Australia. None too happy with this, Jack bailed out of the plane somewhere over the African jungle, using his nappy as a parachute. Dad followed on behind in hot pursuit (what *he* used to break his fall I dread to think). Donning his cool shades, Jack sets out to make even more mischief in the jungle.

The jungle is no place for a tiny tot but Jack is no ordinary nipper. It takes more than a few mad natives and wild animals to scare him!

Unlike most sequels, Jack II is significantly different from its forerunner. Jack has the same character, but the gameplay is more arcade orientated than problem solving, and has somme similarity with the successful Future Knight.

Pink from the hot sun, little Jack starts his rampage on the edge of a cliff, standing in the entrance of a torch-lit cave. Presumably to ward off intruders, the natives have set booby traps in the form of spikes that poke up and down from the ground. Some of these are easily jumped, but others can be very tricky and sharp!

A short way into the cave you come across a bag, which is in fact, as the accompanying jingle informs you, 'a lovely bunch of coconuts.' These come in handy for lobbing at those horrid natives. Further exploration reveals an excellent technical touch as Jack walks through a dark tunnel. The screen blacks out with only part of Jack lit up by a flickering torch.

As you progress through the jungle and caves, the background colour changes to suit the scene. The cave graphics are in a very similar style to those of Ghosts 'n' Boblins, as is the general feel of the game, with, as in appropriate for Gremlin, a a touch of the great Monty about them.

The jungle is full of dangers. Vines to be swung on, puddles to be jumped, all the inhabitants and lots of tall trees to fall from and deep pits. How does Jack manage to avoid splatting himself after big falls? He whips off his nappy, covers his bit with his hands, and gently floats downward. On private landing he turns away and makes himself decent once more.

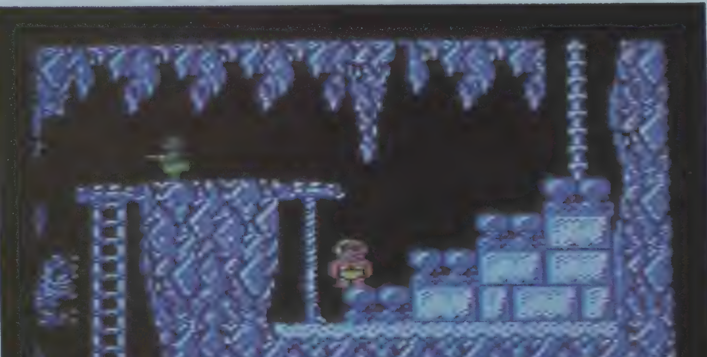
The screen scrolls at a fairpace and is as smooth as it can be. Background graphics are attractively drawn, and the sprites are pleasant if, apart from Jack, not particularly well animated.

Throughout the game there are excellent little jingles when objects are collected, even if the sound effects and title sceen music aren't up to the same standard.

I'm not sure if Jack II will appeal to particular fans of Jack I, as the game is rather different, but will be enjoyed by many more than the original because it's easier to get into and play straight away. If you're feeling naughty, go out and get Jack the Nipper II and run riot with your joystick.

T.H.

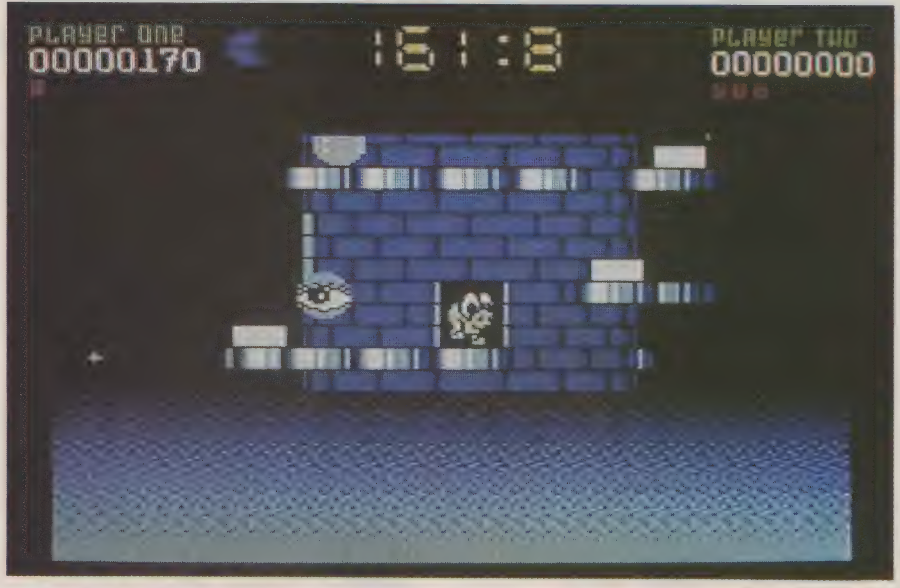
Graphics: ★★★★
Sound: ★★★★
Playability: ★★★★
Rating: MEGA
Price: 9.99 (c) 14.00 (d)



C64

MEGA

NEBULUS!



Nebulus — Hewson

Originality is something rarely seen in computer games these days. Nebulus gives an alternative to scrolling through waves of aliens, shooting the hell out of anything that moves.

The idea of Nebulus is to reach the top of each tower. These towers are built in fishy ocean.

You control a cute little green creature with the ability to shoot, jump, walk and hop up steps. On the outside of the towers are platforms, lifts, doorways, and nasties patrolling. The platforms make stairways encircling the towers, some of which disappear when stepped on. Lifts are self-explanatory, doorways lead through to the opposite side of the tower and nasties give our little friend a shock, sending him spinning into the air.

The first thing that hits you is the incredible way the tower rotates as you walk round it, an excellent diversion from the standard scrolling of flip-screen background. Nebulus is really a platform game played on a rotating tower, but this is by no means a bad thing, as this effect really does add another dimension.

When the top of a tower is reached, it collapses Uridium-style. Next follows a bonus screen set under the shrimp inhabited ocean. Parallax scrolling is used to great effect, giving the impression of a 3D background. Here you have to shoot the fish, encapsuling them, before collecting them.

Each tower has a different colour scheme, and a different layout of platforms, doors and lifts. The first couple of towers don't present too much of a mental strain, but the third took me a fair while to get any distance up it. In fact, it took someone else to tell me how it's done.

The rotation effect of Nebulus is amazingly realistic, and makes the game a pleasure to play. To add to this, the main sprite is very detailed with nice animation, and the others aren't bad either. These graphics are complemented by good music and sound effects.

Fortunately, Nebulus is as good to play as it is to look at, and although it can be frustrating, Nebulus will give hours of fun and its fair share of puzzling. This is an original concept, superbly executed, and mustn't be missed by anyone wanting something a little different.

B.V.

Price: (c) £8.95 (d) £12.95
Graphics: ★★★★★
Sound: ★★★★
Playability: ★★★★
Rating: Mega

Welcome to the World of Adventure — with Andy Moss!

COMMENT

After five complete nine hour days of foot slogging around stands ranging from the small and personal to the huge and quite over the top, I came to the end of my PCW week in two minds. On one hand, there were signs that in the coming twelve months we will be getting some truly mouthwatering adventure and strategy products that really will take us into another dimension of technical achievement. On the other hand, this years show seemed to mark the end of the traditional "one man band" operation. The pioneers that brought about the home games revolution have most certainly and inevitably been swallowed up in the wave of mega big companies who have latched on to the computer bandwagon. It wasn't so long ago that I remember PCW packed out with small independent software houses all showing their new releases, keen to give the Press any samples of their new soon to be best sellers for review. My carrier bags used to be full of new tapes and disks given to me with cries of "just you look at that one", which I duly did and wrote about it there and then.

Todays PCW has been taken over by what I call "the suit brigade". This new breed of super Italian clothed salespersons, represent multi million pound organisations that have some of the best programming talent in the world working for them. Now the word is, "watch the video, see the demo, and we will get the finished product to you via our PR agency in around two months". The Industry has grown up, that's for sure, but I yearn for that personal touch that has deserted it; will it return? Who knows, maybe after the "suits" have pecked away at the body until just the carcass is left, then we will see.

Just to restore my faith in the Independents, it was nice to see Level Nine on their own simple stand on opposite sides of the Hall to Rainbird, and I stopped by Incentives stand who were proudly showing off their Gold Range of GAC adventures, and a new graphic system entitled Freescape. As far as the big guns were concerned Mirrorsoft were proud to show me the latest Cinemaware Products and write an Interview with Bob (Defender of the Crown) Jacobs the President of Cinemaware, who was keen to show off his new game — King Of Chicago. Also there was Mirrorsofts other title, Bermuda Project, (written by Eugene Evans — ex Imagine). On the wargaming side PSS, Mirrorsofts latest tie up were rustling up interest in their Winter releases and SSI courtesy of Jerry Howells were doing the same. Activision had Infocom going strong, and Domark were proudly presenting Jeffrey Archers Not a Penny More Not A Penny Less as a new style text adventure that follows the book in true fashion.

Notable absentees were Ariolasoft, Infogrames (although David Crosweller assured me that they will be there next year, after bumping into him on stand 165788!) and Magnetic Scrolls in person.

On to this months' sortie into Middle Earth, and my thanks to Angus Manwaring for sending me his Quilled adventure Fade Out and also Malcolm Gallon for his game called Crime Does Not Pay. I review both later on, thanks for sending them in, and look forward to anyone else having a go. Tell you want, the first person to get 9 marks from me will get a prize OK? As promised this month there is a bumper help section along with the first of the Zork maps that should have appeared back in July. Read on brave adventurers help is at hand.

MAILBAG

Dear Andy
WHAT!!!! . . . Gauntlet a D&D game? Let me tell you something about computer D&D games. There are only 2 in existence and they are Dungeon Master, and the excellent Bards Tale. D&D is about interacting with your computer in believable (almost) situations. The Bards Tale lets you plan your battles using hand to hand combat or any number of the 85 different spells, or use one of dozens of magical items to be found after

a battle in any of the 7040 locations in the dungeons alone. Bards has everything that Gauntlet has only bigger, better and more including traps. You can choose your race, class and name not just 1 of 4 tiny sprites that runs around the screen fighting hundreds of bed sheets. Bards has 128 different monsters all shown 3 inches or so high in detailed splendour. I finished Bards Tale on Jan 2 after 3 weeks of 12-16 hours per day on it, it had my heart thumping in places and nearly wrecked my marriage! Gauntlet is NOT a D&D game.
Carl Young, Nottingham

Quite. Hmmmm I think you win first prize in the see how many times I can mention Bards Tale in a letter competition. I may be wrong but I think you rather like Bards Tale, Carl, and so do I mate. Bards Tale is a very clever game, and Bards Tale 2 is even better. In my defence I actually said that Gauntlet was an arcade game (which it is, unlike Bards Tale) and brings you the true spirit of D&D by plunging you into the dungeons and fighting for real not just typing ATTACK row 1 as in Bards Tale. I enjoy playing Gauntlet as a bit of fun, and Bards Tale as serious role playing. (I said Bards Tale more times than you so I win. AM

Dear Andy
I am not a budding adventurer but when I won a copy of KWAH in a CCI competition I decided to give adventures a go. Weeks later, I still haven't got past the first location. My question is how do you get through the drive gates? I know it has to do with the camera but I can't pick it up or use it. Please stop sniggering and help out a novice.
Matthew Tipple, Tyne & Wear

It is a shame that you picked Kwah to play as your first adventure Matthew as it can be bit tricky to get to grips with. You are right though, the camera is the key to getting in. When you start you are Red Hawk, change to Kevin and you will find you are carrying a press pass. Put pass under camera and the gates will open. AM

Dear Andy
I read in the Sept 87 issue that you will review "home made" adventure games. I have written one, but could you please answer a few questions before I send it to you. First, I wrote the adventure using Incentives GAC, do you mind this and do you think it gives the game any less value commercial or otherwise. Second will you accept disk or tape? Will you return the disk or tape, and third should I send in a map list of commands and solution etc.
Derek Morris, Swansea

First Derek, well done for using the GAC, it is a fine system and can provide some fun adventures. It can be of commercial interest, look at Incentives own series of Gold adventures which are all written using GAC. Second, either will do. Third, although I love to play adventures all the way through, it would mean that deadlines would not be met and no adventure pages would appear, so sending in a hint sheet helps me get to the latter stages quicker than plodding on on my own. AM

Dear Andy
We own the Zork Trilogy and have subscribed to CCI for several years. I enjoyed playing Zork 1 but got stuck so Zork II and III remain unopened. The June edition promised a Zork map and I nearly cried for joy. Unfortunately it did not appear nor in the next issue, what happened!! I beg you to print it.
Peter Ward, Northants

Sorry about that Peter, lack of space I am afraid was to blame. Cheer up though cos this month we got it!! AM

Dear Andy
Last year I bought Zork I and II. Please could you help. How do I stop the Maintenance room from flooding and how do I inflate the pile of plastic. In Zork II how do I get past the circular room and where is the three headed collar for Cerebus?
Jonathan Dale, Derbyshire

All is revealed this month Jonathan in the help section so if I was you I would stop reading this and turn to it NOW!!! AM

Dear Andy
I need your help, I seem to have come across a problem in Guild of Thieves. I have obtained a score of 365 and put all the treasure I can find in the bank. It rejects all that I have left. The gravedigger gives me no response, I can't open the door to the roof or find a way through the wall at the top of the Temple. Also there are lots of items that I cannot find uses for. Please help.
John Bartlett, Cornwall

Your problem at the bank John is a major bug that cropped up in early versions of the game. What you must do is replay the game up to the Minah bird and only use up to 8 characters in your sentences when talking to it. If you use more than this, the bug comes in and the bank will not take treasure. In fact you have done it all, so just put in the rest of the treasure and you will get 501 points.

In all Magnetic Scrolls games there are lots of items with no use to them. AM

ADVENTURE NEWS

SSI AND TSR IN CO LICENSE TIE UP

TSR the games world giants responsible for the classic best selling fantasy role playing game systems Dungeons and Dragons and Advanced Dungeons and Dragons have announced a major deal with

CONTINUED-PAGE 110

Adventure!

SSI. The license which will run over the next 5 years will see games being produced by both US Gold and SSI. This promises to be a very exciting development in the field of computer fantasy role playing and if TSR can bring their games successfully over to computer we will have some excellent adventures to play.

DOMARK AND JEFFREY ARCHER
At this years PCW Domark announced news of SAGA their new system of presenting novels as computer games — Speech and Graphical Adventure. The aim is to include as much visual detail in the game as possible, backed up with digitised speech.

NOT A PENNY MORE NOT A PENNY LESS Jeffrey Archers best seller is the first book to be given the full treatment using the new system. You are guided through the plot — unlike most adventures which are more free form, this game is based very closely on fictional events catalogued in the novel. Puzzles have to be solved in each location before you can move on and you can't back track if you fail to spot an important clue. Text only purists are catered for as the graphics can be switched off, but it would be a shame as there are nearly one hundred photos of the actual locations mentioned in the book. Retailing at £14.95 and due out early October.

INFOCOM SET TO CHALLENGE MILLS AND BOON
PLUNDERED HEARTS, Infocoms new title heralds the companys entry into a romance genre. This is the first story in which you the main character are a woman (unlike Leather Goddesses and Moonmist where you had a choice) and where the action is distinctly romance spliced with adventure on the high seas. This on the outset may appear a bold move, as women tend to be a relatively small segment of the home computer market, yet author Amy Briggs has managed to create a title that is equally appealing to men. The response of pre release testers, the majority of them whom are male, was overwhelmingly favourable. Watch for the review next month.

BEYOND ZORK — AN INFOCOM ROLEPLAYER IMMINENT
It all seems to be Infocom this month as news of Beyond Zork is made available. This is not a sequel to the Zork Trilogy, but a new chapter in the lore of The Great Underground Empire. Due to civil disorder the wizards have all disappeared, and it is left to one brave adventurer to reclaim and hide the fabled Coconut of Quendor, within whose time impervious shell lies the essence of magic. As a dedicated role player, Beyond Zork lets you create a character with defined attributes which will become more powerful as the game goes on. More details next month.

PSS IN MAJOR AUTUMN PUSH
After their distribution deal with Mirrorsoft, PSS announce details of their Autumn schedules which include 10 new titles in their Wargamers series. Annals Of Rome, where the game objective is the expansion of the Empire and survival, Pegasus Bridge a D-Day simulation, Sorcerer Lord a magic and sorcery role player, Classic Conflicts — Tobruk — Okinawa, Power Struggle, a two player real time game of superpower politics, Battlefield Germany, a modern day warfare game using advanced AI techniques, Firezone, and Final Frontier, 21st Century scenarios, and finally, Fortress America where the player takes the role of US President against the Soviet Premier. All will be fully explored in this space shortly.

EXCLUSIVE EXCLUSIVE EXCLUSIVE EXCLUSIVE EXCLUSIVE EXCLUSIVE EXCLUSIVE

INFOCOM TO RELEASE BORDERZONE, A POLITICAL SPY THRILLER
News hot from the old USA is that Infocom already with Plundered Hearts and Nord and Bert just released, are soon to have Borderzone available, and it sounds just fabulous. The game is actually set in three parts, and begins on a train in Eastern Europe. The first part deals with the player as an ordinary businessman whose world is plunged into danger and espionage when he meets an American agent covered in blood on an express train. The agent passes him vital information which has to be delivered to the CIA in the States. The adventure then is to get to America and deliver the info without getting killed. In Part two, the player then becomes the original bloodstained and injured agent and continues his story after he has passed on the info. He has to somehow get out of the country on foot, hotly pursued by a deadly Soviet agent. In part three, yes you guessed it you play the part of the Russian agent in his quest to capture the elusive American spy. It all sounds absolutely terrific, and promises to be Infocoms most exciting to date. Watch this space.

MESSAGE FROM MAGNETIC SCROLLS

ANITA SINCLAIR HAS ASKED ME TO INFORM YOU OF A BUG IN GUILD OF THIEVES. WHEN TALKING TO THE MINAH BIRD ONLY USE 8 CHARACTERS IN THE SENTENCE OTHERWISE THE BANK WILL SHUT. ALSO SHE WANTS TO REMIND ALL OWNERS OF GUILD TO SEND IN THEIR BURGLAR FORMS SO THEY CAN SEND YOU SOME GOODIES IN RETURN

CONTINUED ON PAGE 112

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Adventure!

HELP AND HINTS DEPT

ZORK I

The Egg
Only the thief can open the egg, give it to him or leave it underground where he will find it.

The Troll
Kill him with the sword.

The Maze
There are 22 rooms WEST of the Troll room.

The Cyclops
The Cyclops is scared of the name of his fathers nemesis, Odysseus or Ulysses. You get this from examining the commandment in the black book.

The loud Room
Type ECHO.

Entering Hades
Ring the bell, light the candles and read the black book.

The Rainbow
Raise or wave the sceptre whilst standing at the end of the rainbow.

Lighting the Drafty Room
The lamp can be placed in the basket, which in turn can be lowered or raised.

To Kill The Thief
As you gain points you become a better match for him.

The Stone Barrow
When you get 350 points you can enter it.

The blue button causes a pipe to burst in the maintenance room, use the gunk to stop the leak.

The platic pile can be inflated using the air pump.

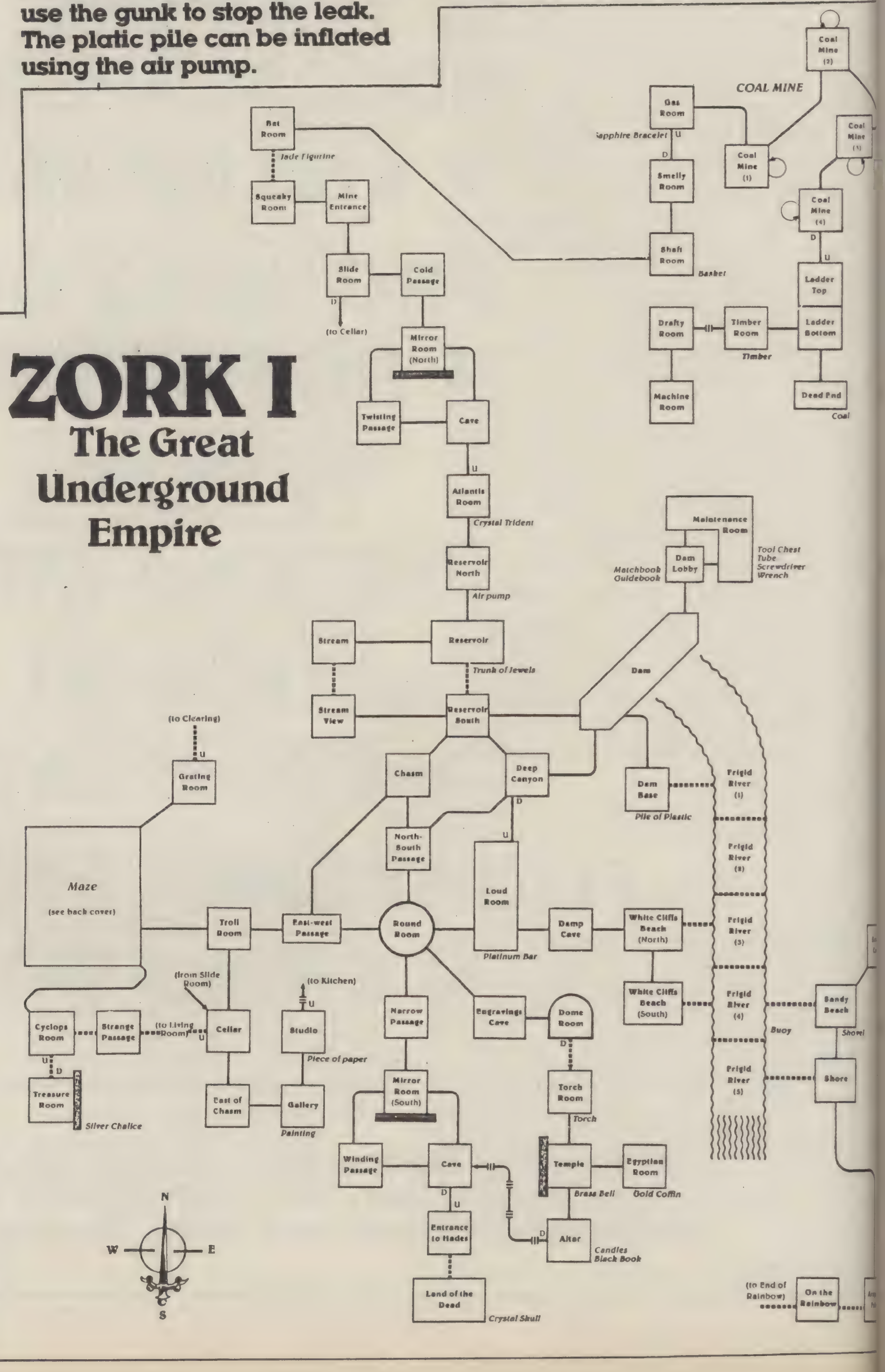
LORD OF THE RINGS

The Barrow Wight
To defeat him you need to rob him of everything then throw an elf stone at him.

Moria
Cannot be entered without Gandalf.

To Cross the Ford
To cross the Ford at Rivendell you must ride the white stallion. Tell it where to go, and discard it once you have crossed over.

Radagast
He can be found in the Blue mountains observatory to the west of Hobbiton. Do not kill the monk.



Coal Mine (3)
COAL MINE
Coal Mine (2)
Gas Room
Sapphire Bracelet
U
D
Coal Mine (1)
Bat Room
Jade Figurine
Smelly Room
Coal Mine (4)
D
U
Squeaky Room
Mine Entrance
Shaft Room
Basket
Ladder Top
Slide Room
Cold Passage
D
(to Cellar)
Drafty Room
Timber Room
Timber
Ladder Bottom
Mirror Room (North)
Machine Room
Dead End
Coal
Twisting Passage
Cave
U
Atlantis Room
Crystal Trident
Maintenance Room
Tool Chest
Tube
Screwdriver
Wrench
Dam Lobby
Matchbook
Guidebook
Reservoir North
Air pump
Stream
Reservoir
Trunk of Jewels
Dam
Stream View
Reservoir South
(to Clearing)
U
Grating Room
Chasm
Deep Canyon
D
Dam Base
Pile of Plastic
Frigid River (1)
Frigid River (2)
Frigid River (3)
Frigid River (4)
Frigid River (5)
North-South Passage
U
Maze
(see back cover)
Loud Room
Platinum Bar
Troll Room
East-west Passage
Round Room
Damp Cave
White Cliffs Beach (North)
White Cliffs Beach (South)
(from Slide Room)
(to Kitchen)
U
Cyclops Room
Strange Passage
(to Living Room)
U
Cellar
Studio
Piece of paper
Narrow Passage
Engravings Cave
Dome Room
D
Sandy Beach
Shovel
Buoy
U
D
Treasure Room
Silver Chalice
East of Chasm
Gallery
Painting
Mirror Room (South)
Torch Room
Torch
Shore
Winding Passage
Cave
Temple
Egyptian Room
Brass Bell
Gold Coffin
D
U
Entrance to Hades
D
Altar
Candles
Black Book
N
W
E
S
Land of the Dead
Crystal Skull
(to End of Rainbow)
On the Rainbow

ZORK I

The Great Underground Empire

Legend

- —— Normal Passageway
- ——→ One-way passageway
- .... Passageway requiring special equipment or problem solving
- ⊣⊢ Narrow passageway (baggage limit)
- ◯ Passageway returning to room of origin

NOTES: All horizontal passages leave the room in the direction shown. Vertical passages are labelled "U" for UP and "D" for DOWN. To avoid unnecessarily giving away problems, this map lists only those objects immediately visible upon entering a room. Only objects which can be taken or used are listed; objects which are merely part of a room are not. Where more than one direction leads to the same place, all are not necessarily shown.

Adventure! ....CONTINUED

LEATHER GODDESSES OF PHOBOS

The Sultans Palace

The laundry room will get you the clothes pin.

In the Minaret the floor will collapse creating an exit from the cramped space.

If the Sultan keeps killing you, you must answer YES when asked if you are ready for the riddle.

The answer to the riddle is RIDDLE.

The Harem guard can be passed by giving him the answer backwards type ANSWER 123.

In the Inner Harem ask her to do what the secret message tells you to ask.

PLANETFALL

At station 384 you have to shoot the speck a number of times to destroy it.

ADVENTURE REVIEWS

ZODIAC/SEARCH FOR THE SECRET OF LIFE

Incentive double gold — £7.95

As time goes on, I find myself gaining more and more respect for Incentives GAC system. It is fast, colourful and inexpensive, and put in the right hands can create some really nice adventures. Double Gold in a series of "Two for the price of one" tapes all using GAC as the adventure system.

ZODIAC is all about the evil wizard Ramus, who intends to destroy you and your tribe of ancient warriors unless the tribe manages to find a way to banish him. This of course can be found in the signs of the zodiac, which, so legend has it, provide defence against evil. The game relies heavily on the Find object/solve puzzle variety and there are plenty of strange objects scattered about. Quite what a pair of wellies and a machine gun are doing lying about is beyond me, but if you overlook the slightly unreal element, and just enjoy cracking the puzzles, the game is fun.

THE SECRET OF LIFE is a three parter about the search for exactly that. You the adventurer have been told that the answer to the secret of life is kept in a far off land. After exploration of this land you find that the way back no longer exists. So not only do you need to find the secret of life, but also the secret of how to get home again. The graphics are very pleasant, and I found all the puzzles to be at least logical which always means a good vote from me. Unfortunately, my review copy had a bug in it, so I couldn't finish it, but this I am told by Ian Andrew has been rectified in the finished version.

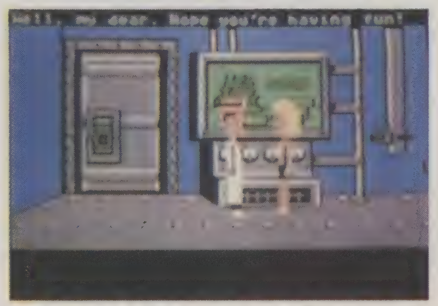
Personal Rating 7

MANIAC MANSION

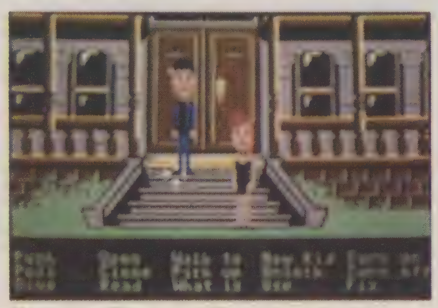
Lucas Films/Activision — £9.99

From the makers of the wonderful Labyrinth comes Maniac Mansion, a very witty madcap adventure set in an old house and featuring all the ingredients of a spoof horror film; a mad professor, three schoolkid heroes, aliens, mutants, purple slime and world domination. Lucas Films have taken the Labyrinth idea of colourful large sprite characters moving around a background which hides a clue or two, invoking a text input system where the words are just highlighted and then chosen, and dreamed up a great adventure in the true graphical sense. This is not an arcade adventure at all, it is a pure graphic/text adventure but set in real time with moving characters. The puzzles are mean, (try working out how to get in the house without looking at the manual) and you control not one but three different characters, each with their own skills. To add to the excitement, little cameo "cut scenes" appear in movie fashion to tell you what is going on in other parts of the house. Can you rescue Sandy from the clutches of Dr Fred and Nurse Edna? Betcha can't.

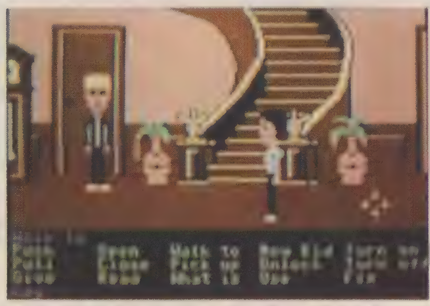
Personal Rating 8



Poor Sandy! What does Dr. Fred have in store for her?



How can Dave and Razor get inside to rescue Sandy?



Realizing the mansion's size, should Wendy and Syd split up?

CRIME DOES NOT PAY

Malcolm Gallon — Quill

Crime Does Not Pay, is a Quilled and Illustratored adventure using 94 locations with a few sound effects to boot. Written by CCI reader Malcolm Gallon, the story is about robbing a bank and getting away with the money without setting off any alarms or getting caught by your know who! The graphics Malcolm, are really quite well done and like the way the old boys in blue kept nosing around, it got quite exciting in places. The first part is really collecting objects to use later on, and there is a slight problem in the shop. When you enter and see a box of hands, you cannot take it, you can only buy it. Most adventurers are used to things just lying around, if that is different to the norm you should drop a little hint to that effect. Nice puzzle at the end and well done for creating an entertaining game. Anyone who would like to find out more can write to Malcolm at 3 Farburn Drive, Stonehaven AB3 2B2.

Personal Rating 6

THAT'S ALL FOR THIS MONTH, NEXT ISSUE TWO INFOCOM REVIEWS AND SOME NEW SSI ROLE PLAYERS. SEE YOU THEN.

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TERRORPODS

Psygnosis

Psygnosis, one of the best reasons to buy an Amiga, have let their talents run riot once more in their latest game Terrorpods. With some deviation from their style of late, they have produced a sci-fi game with strategic overtones.

The Story

Colain, an asteroid out on the edge of System 7 is not the sort of place you'd go for your summer hols. The only thing it's got going for it is its rich mineral deposits. So valuable are these minerals, opposing forces are prepared to kill for them. Detonite, Quaza, Zenite and Aluma are the names of these minerals, valuable for their explosive, energy giving, magnetic and strength qualities.

Ten mining colonies have grown up on Colian. Each colony has its own mines, stores and resource centre essential to the mining operation, with shuttles to transport the minerals throughout the network.

The whole think was going just too smoothly to last. Like a huge dark cloud, an Empire Mother Ship came into stationary orbit around Colain, bringing fear and panic to every soul on the asteroid.

The ship first took out the defence systems. There was nothing to do but wait for the final destruction. Surprisingly it never came. The Empire had planned a more advantageous strategy.

There was no more destruction. Colain was the perfect location for the construction of terrorpods, the essential ingredient in the Empire's planetary conquest.

In an attempt to discover the secret of the terrorpod's construction, I was selected for an undercover mission, in which I would pose as a simple trader in a Defence Strategy Vehicle.

The Empire soon learned of my presence and motive and sent down terrorpods and spoilers to destroy the installations, leaving me with a fast decreasing amount of resources which I needed to operate. I had to defend these installations for my own survival. Using my phasers I could fend off the spoilers and terrorpods, but they'd be back, unless I could put an end to them with a well aimed missile.

You might think that was more than enough to contend with, but strategic trading had to take place between myself and the remaining installations for both our sakes...

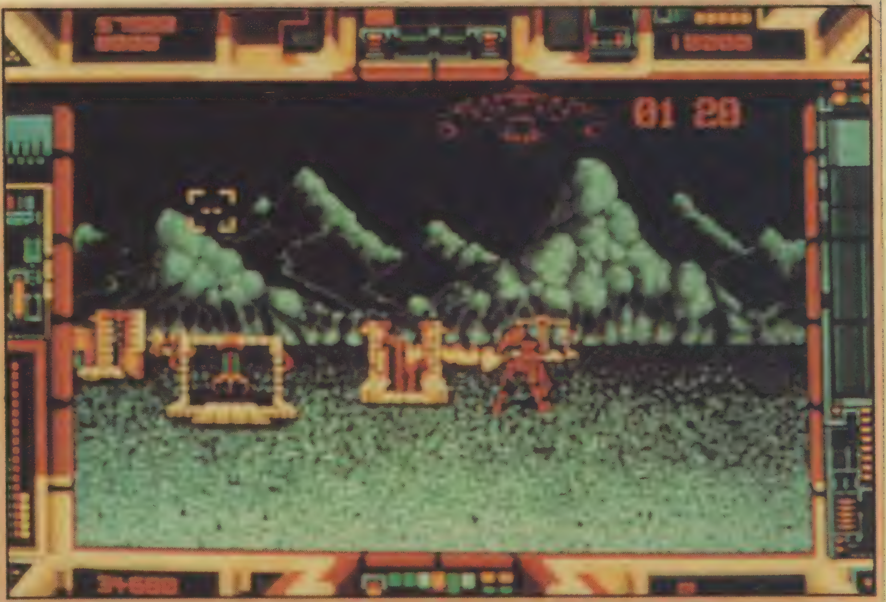
That's where the story ends and reality begins.

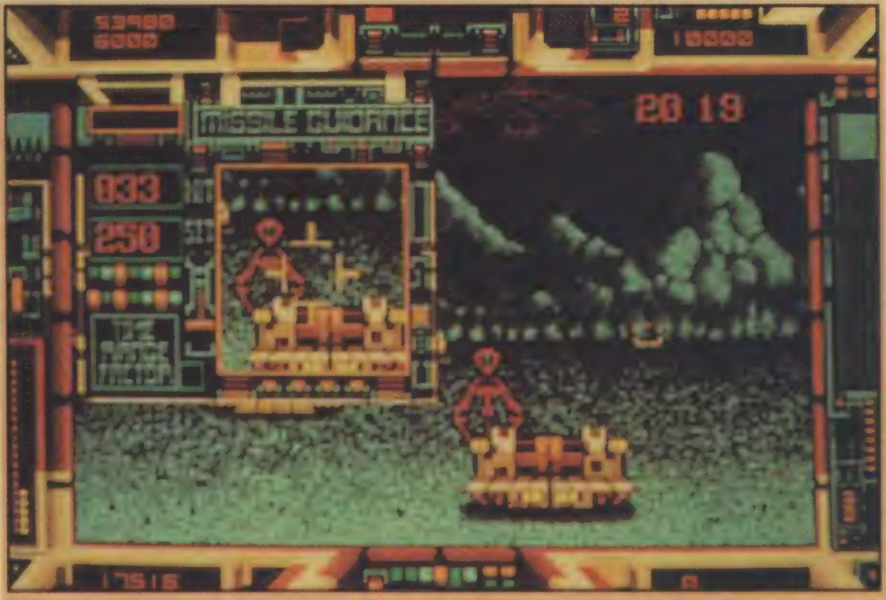
The Game

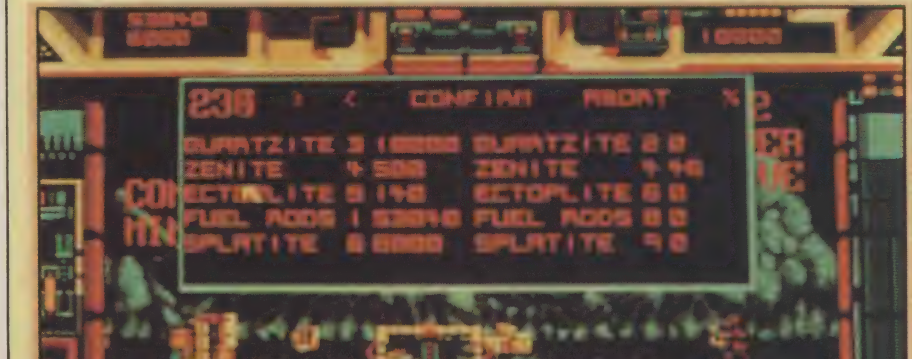
Another excellent Psygnosis introduction sets the scene. A static title screen makes way for a superb animated sequence of a terrorpod pilot boarding his towering mechanical beast. This is more than a pretty picture as it adds a lot to the game's atmosphere. Those Amiga users who don't understand English well will welcome the option to have all in-game messages in one of six languages.

Formalities over, it's on to the game. The view is from the seat of your D.S.V., looking out onto the rugged landscape of Colain. The mining takes place in a huge crater, the wall of which can be seen on the horizon.

Your vehicle is controlled by the joystick, with a sight controlled by the mouse. This sight has two modes







of operation, with two functions in each mode. To start with, positioning it over an installation and pressing the left button will give information on the installation. The right button will allow radio messages to be sent out if emergency supplies are needed. The return key toggles the modes. The second mode is for destruction and construction.

As soon as I discovered the second mode, my instinct told me to blow up everything in sight. Well, wouldn't you? A big explosion and meaty sound effects make it irresistable just to keep blasting. Unfortunately, phaser power is limited and will run out after a certain amount of use.

The Empire Mother Ship is ever-present wherever you are on the asteroid. This shoots missiles at your vehicle whic can be dodged or destroyed with your phaser, and it also sends down terrorpods and spoilers to blow up the mines and stores. A good shot will send them packing, but a missile is needed to finish them off for good, but as with the phasers, missiles are limited in number.

Terrorpods is played in 3D. The mines and other structures grow and shrink well, but you can't help noticing the effect is somewhat spoilt by the progressive colour shading. When moving sideways, the shading scrolls, but when moving forwards or backwards, the ground looks stationary, with the structures seeming to slide about.

Whilst protecting the installations, you must trade with them using your remote controlled drover to keep both you and them stocked with what you need, and collecting components of the terrorpods when available.

Unlike Psygnosis' last game Barbarian, Terrorpods is not an easy game to get into. Although I must admit to being one of the 'If all else fails read the instructions' school, it took me a fair while to understand the game, even after reading the instructions a few times. Once into the game it can prove a highly enjoyable mix of arcade action and strategy.

Terrorpods is a very professional looking game which will appeal to strategists with an inclination towards sci-fi action.

T.H.

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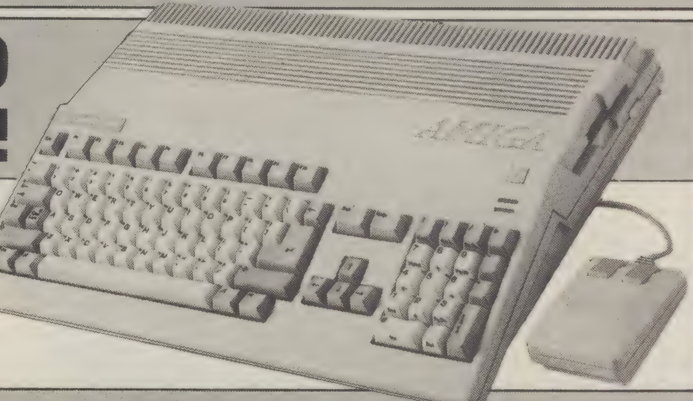

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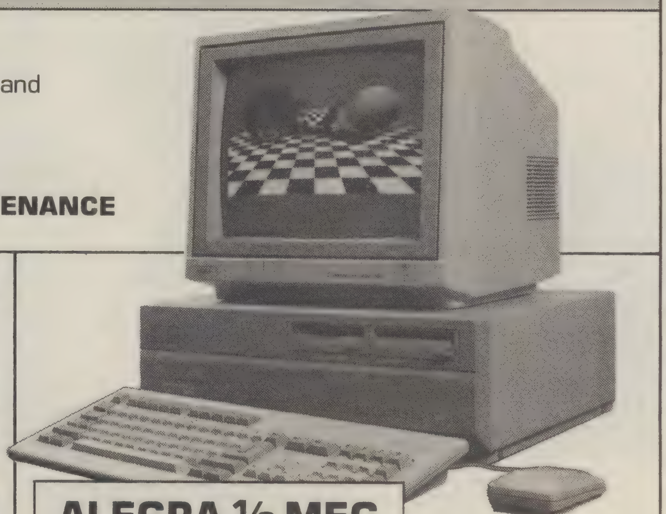

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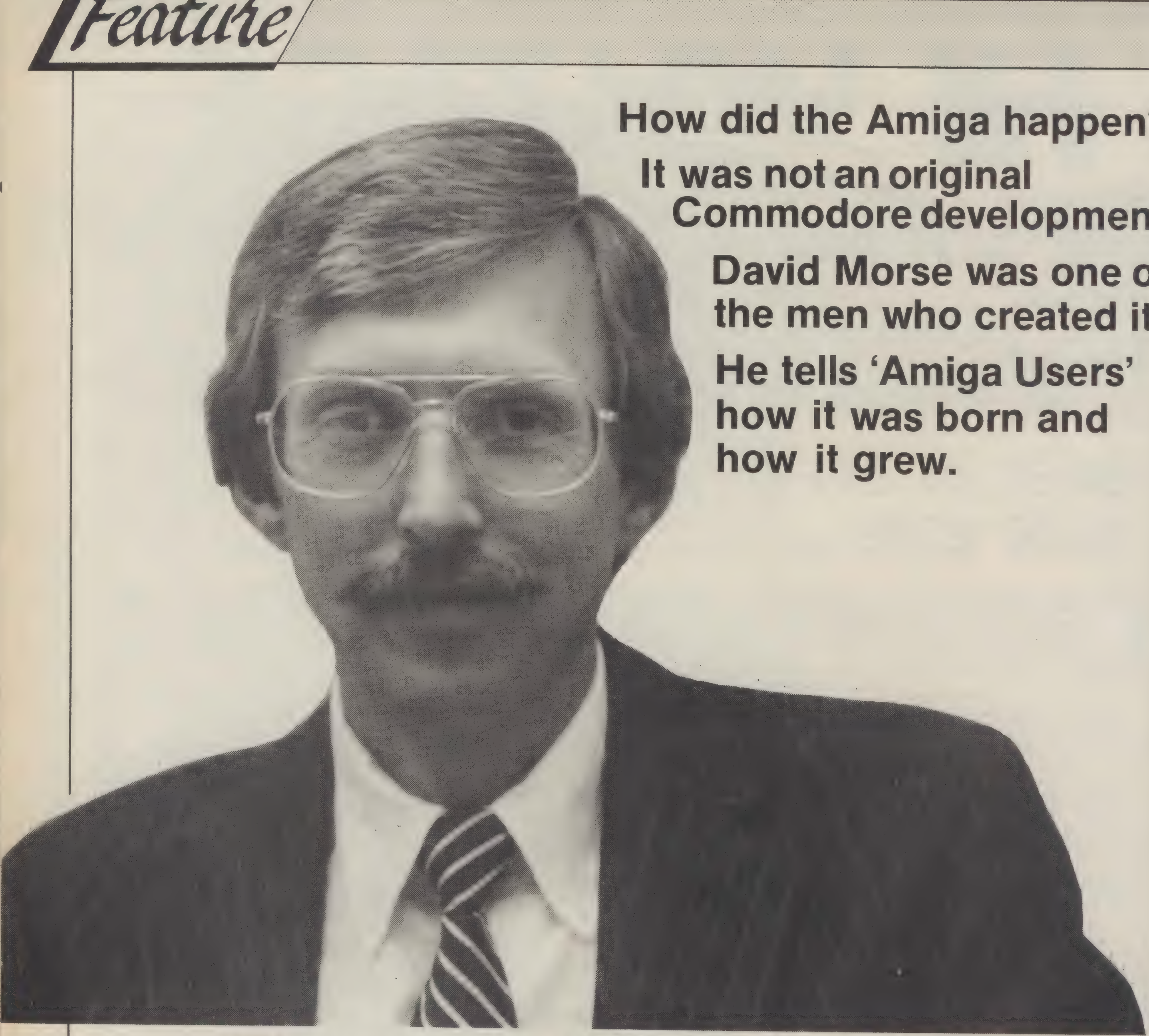
How did the Amiga happen? It was not an original Commodore development David Morse was one of the men who created it. He tells 'Amiga Users' how it was born and how it grew.



"The spec we set is basically what it is..."

David Morse today heads up Epyx, one of the most successful and influential games software companies in the world. Its games are played by hundreds of thousands of home computer players in many different countries. But maybe one day his biggest claim to fame might have little to do with his Epyx activities. For David Morse was one of the two men who, in early 1983, set about creating a video games system that ended up as the Amiga computer.

At that time, six companies announced that they were getting into games video cartridges. So David Morse who had just been introduced to one of the United States outstanding computer engineers, Jay Miner, sat down with him and they decided to produce a machine that "... was way out ahead... Pushing the technology way out..."

For the first three months they didn't design anything. "Jay explored custom chips... what RAM chips were going."

They did some market research. At that time the big names were Radio Shack and Texas Instruments. "People were buying them for balancing their cheque books... for Word Processing... But they wanted them for entertainment... for graphics... to be easy to use... This was before the MAC or LISA... There was the Xerox Star... Nintendo..." He shakes his head as if wondering where most of those big names are today... "So we get a spec. Screen resolution... speed... colours. The spec we set is basically what it is... 4096 colours... Till March of '83, there were only three or four people in the company... We got together with a black board..."

David Morse has himself an engineering degree but had never been an engineer, he says.

By March 1983, the Amiga was designed. The rest of 1983 was devoted to creating and testing the custom chips. But by mid-November it looked like there was no way it could be done — at least in time for the Consumer Electronics Show in Chicago in January 1984.

"So the guys moved into the office and worked around the clock... 'We've just gotta get this thing done'... On January 1st 1984 for the first time the Amiga came to life... They spent the next few days fitting a tube... 18 boards... 3000 off the shelf pieces to emulate it... I saw it work and took it to CES... We laid it out on a table for software developers and investors to see..."

Although David Morse does not say so, it is common knowledge that the development of the Amiga was an extremely dubious financial proposition. It might not have worked and the whole thing could have been a financial disaster. Investors had been unwilling to sink their money into Morse's company. So the urgency of getting the computer to run and to show it at the Consumer Electronic Show was not just a question of pride or beating the opposition but a matter of survival.

In spite of that desperation, they did not pretend that the Amiga was in anything but a highly preliminary state. They could have covered it up or shown a video. Instead they put all the temporarily fitted together bits out in the open on the table and let the world see.

"Until we showed it, I wasn't confident we had a great product... It just blew people away... Dick Shaffer" Perhaps the most respected writer on computer technology of the time," told us 'You have the most exciting thing in the Show!'... We spent the next six months finishing up the custom chips... We planned to have the product in the market at the end of 84..." As a result of the attention of people like Shaffer, they got a call from Commodore. 'We're very interested in licensing your technology.' They were told.

Commodore wanted an option to use the Amiga hardware technology in its products. "Don't forget," says Morse, "We were two years and $6 million down the road... They wanted a 30 day option... At the end they said 'We want the software too."... I told them 'I'm not going to sell the company for the cost of one license!'... We were trying to raise 15 million to get the product into the market... and the state of the market was very shaky then..."

He falls silent remembering the knife ege on which the existence of the Amiga then rested. So you sold out for $25 million?

"No. $27.1 million... They didn't want to bring the product out in 1984. They wanted to upgrade the hi-res chip. I told them that they shouldn't plan on me being a part of the new company... But I stayed on till April 85... with an agreement for consultancy for 2 years..."

There are clearly some regrets about the way that he would have marketed the Amiga. "We wanted to finance a lot of software. Commodore didn't want to..." Many people would say that Commodore was wrong and Morse was right. The Amiga might have taken off much more quickly had there been enough software to convince buyers that the machine was a good investment. Had Commodore backed the software...

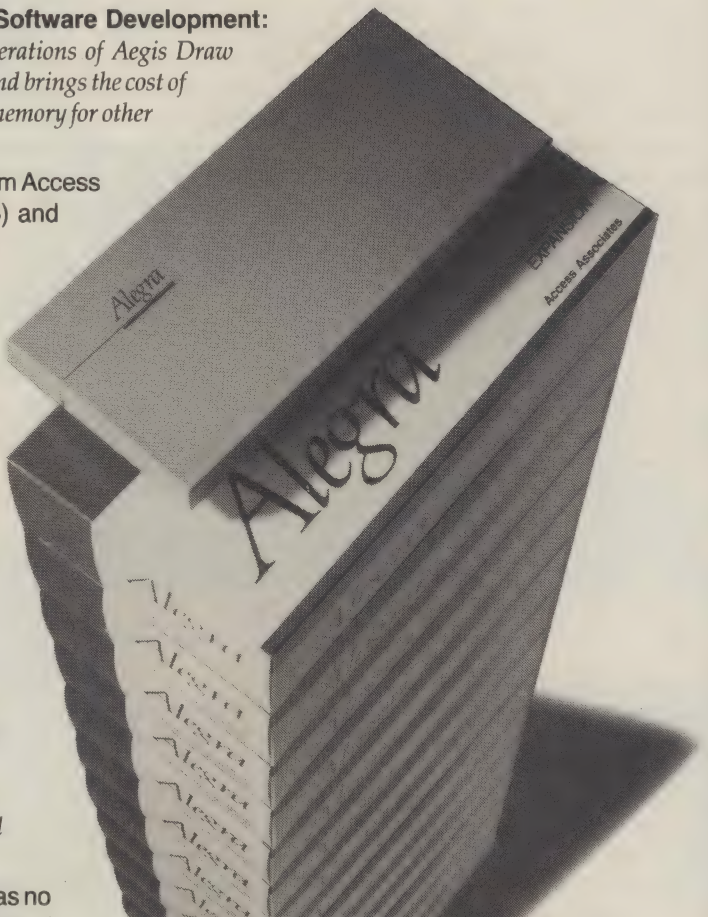
But for David Morse the memories are by no means all regretful. "It was a great experience... We had a wonderful group of people... A lot of mutual respect... Some really special things... you don't have that many special things happen to you in your life..." The people who worked so hard also shared in the rewards "Every Amiga employee had sock in Amiga..."

But the Amiga story isn't entirely finished for David Morse. Of course Epyx is developing 16 bit products for the machine but there is a closer link than the multiple zeros in his bank account that enabled David Morse to take some time off before he joined Epyx to recover from the stress of the "Amiga experience... it proved how difficult it is to get something into the marketplace..." For he has brought into Epyx two of the team that worked on the Amiga, Jay Michel — one of the most expert and prolific software creators for the machine and Dave Needler a top Amiga design manager. They are working on some special projects, maybe what David Morse calls something "Off the wall."

Whatever they do, it will be difficult for them, or David Morse, to repeat that excitement of developing what is now recognised as a masterpiece of the computer age and yet to see it slip out of your control. Perhaps they would not want to try to equal that. After all, it is pretty unlikely that more than once in anyone's lifetime the experience will come along of creating an Amiga.

AMIGA
AMIGA

Reasons to add Alegra are stacking up.



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FIREPOWER

Microillusions

Faery Tale Adventure, possibly the greatest Amiga game ever, put Microillusions right up with the leading Amiga game producers. Big things are bound to be expected of their next game Firepower, but are these expectations to be justified?

Firepower is the first in the 'One to One' range of games, all to feature one player, two players or two players through a modem options. The object of the game is for you to recover the enemy's flag without being destroyed, and before your opponent (if played with two players) recovers yours.

Before playing, a number of selections must be made, the first being whether to play alone, or against another player who can be at the other end of a modem. That done, each player's tank must be chosen from a choice of three. These tanks have varying speeds, carrying space, fuel and armour strengths. Selections made, it's on to the game.

When played in one player mode, the action window fills most of the screen, with the status area to the right. Two player mode has a split screen, half for each player resulting in a smaller area for both players, with the status areas below. Both players have an independent view (from above) which scrolls, sometimes jerkily, in all directions.

Whichever mode in which you play, the object is to capture the enemy's flag. Your tank starts in a shelter in your fortress. Moving out, you begin to explore the fortress and discover it to be enclosed by a destructable wall with gun turrets at regular intervals. Paths lead around the fortress but need not be followed as your tank can drive just as well on the rougher ground. On sighting a building, any normal gamer starts blasting. It so happens that blowing up your own buildings is a good idea. Destroying a building sends your panic-stricken comrades legging it to your tank. Drop them off at the hospital to earn points per man.

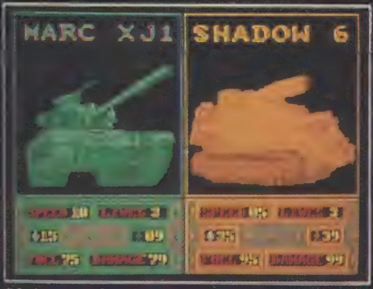
Getting down to the real mission, you must leave the comparative safety of your fortress and penetrate the enemy fortress. Mines are laid at points around the land and can be very difficult to avoid running into. When you make it to the enemy fortress, taking out gun turrets helps keep the pressure down while you blow a hole in the wall. Once inside, you must dodge and fight off constant enemy fire as you try to locate the flag.

The tank is controlled by the joystick, it moves in the direction of the stick, but can be tricky to manoeuvre as it goes in reverse unless faced in the right direction, and can easily get stuck in the remains of a derelict building.

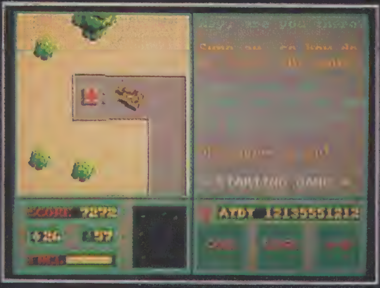
As far as graphics go, Firepower has some well drawn sprites, and suitably rugged backgrounds, which are let down a little by the uncomfortable scrolling.

There's a lot of noise in the game, but few different sound effects. The overall sound is one of big explosions everywhere.

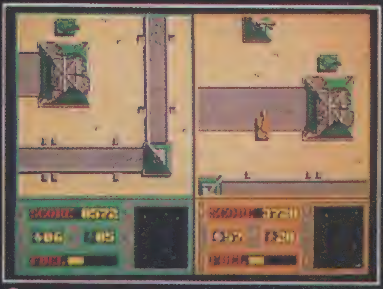
The option of a two player and modem game is a great addition to what is a very different game from Faery Tale (although it does have a similar style). Even though the game is played over a large area, I found it to be somewhat lacking in depth, but then as I said, it isn't Faery Tale. War gamers and shoot 'em up fans alike will go crazy for this all action, total destruction tank battle.



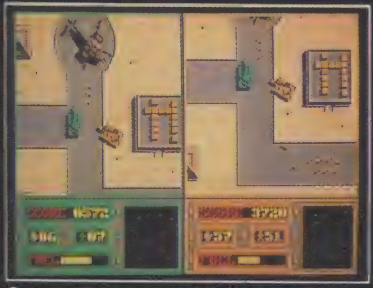
Multiple Tank Selections.



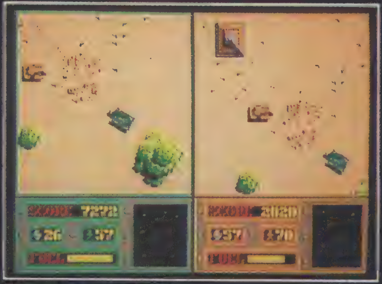
Modem play.



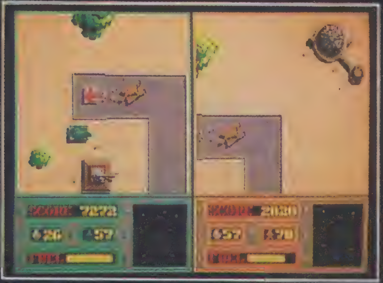
Capturing the flag.



Get your opponents Helicopter before it gets you.

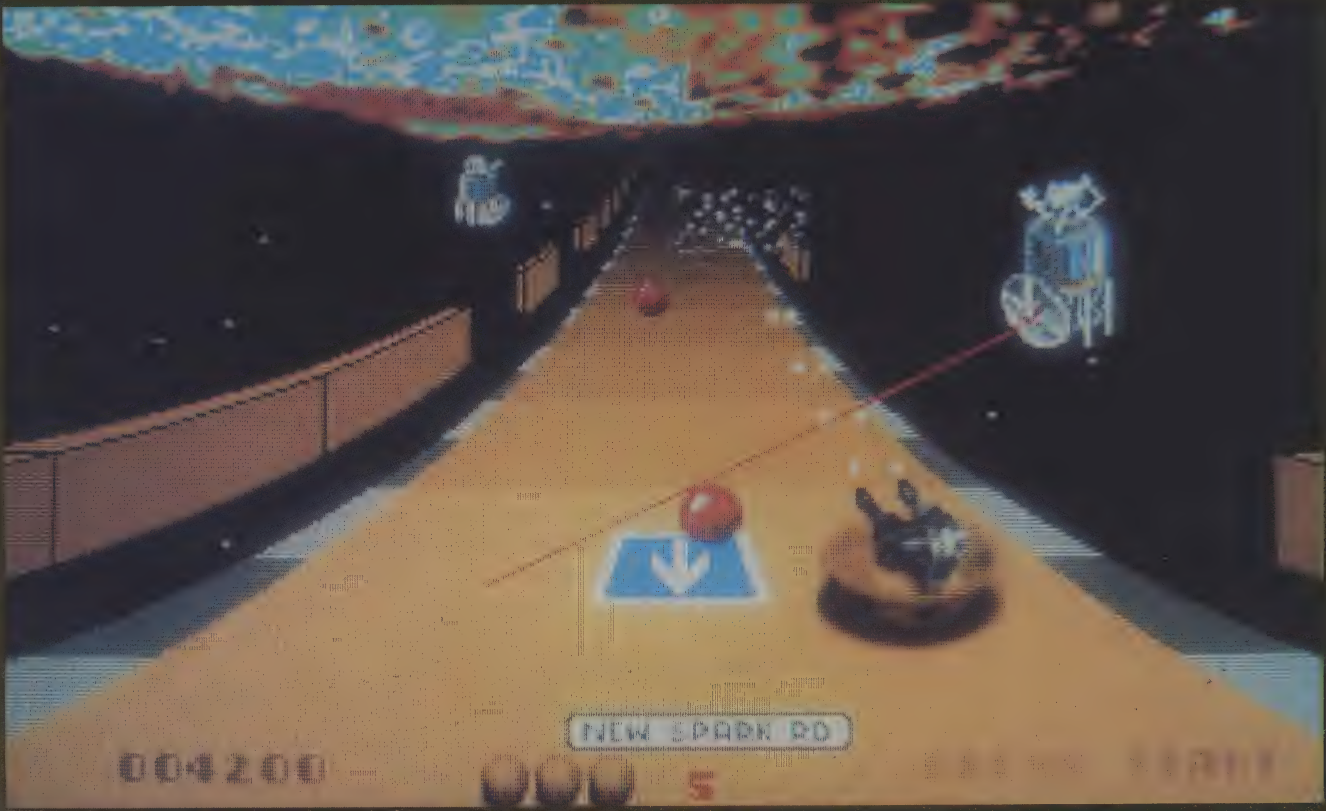


Blood on the field.



Rescue mission completed.

ROAD WARS



Mastertronic

Possibly Mastertronic's biggest venture yet is their one into the world of arcade machines. Their range of arcade machines, known as Arcadia, are really Amigas in an arcade cabinet. Road Wars, their first game is now available for the Amiga 500. As the original for the arcade was written for the Amiga, you can imagine what a close version it is. In fact, it is almost identical, just a few features of the original are missing.

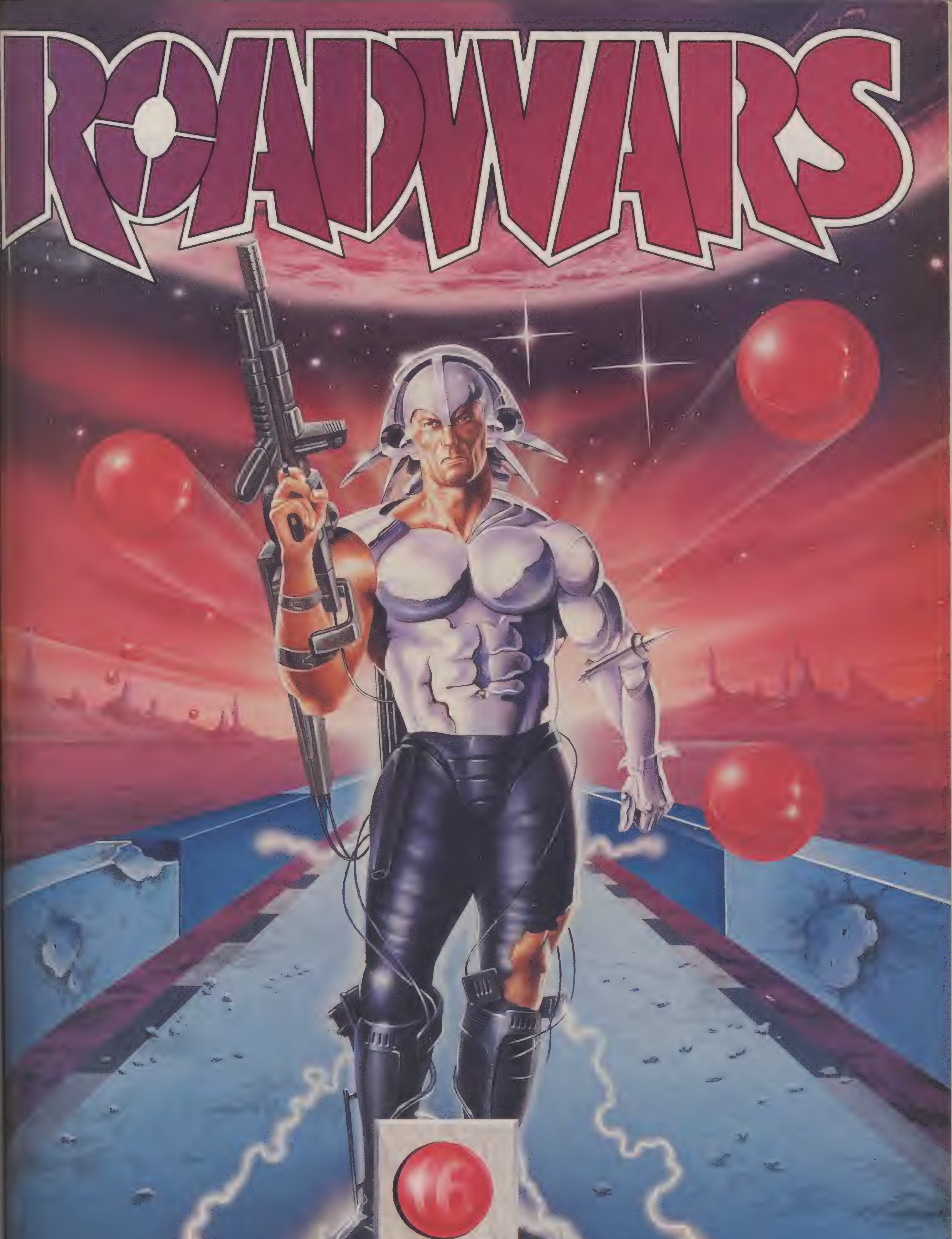
The game is for one or two players, both of whom are on the screen simultaneously side by side. The simple aim of the game is to battle on along the seemingly never-ending highway encircling the Moon of Armageddon.

Each player controls a battlesphere which has an enclosed gun turret. The battlespheres have two modes of operation. Starting as a ball, they roll down the highway, protected from enemy fire and road obstacles. At the press of a button, the top flips open to reveal the gun. This is needed to knock out nasties on the road, satellites and roadblocks.

The game is depicted in 3D from behind the players with the moon flashing past at the top of the screen. The 3D effect is very convincing as everything moves very smmothly and speedily.

I think that as an arcade game, Road Wars may not be particularly amazing when compared to the likes of Out Run or Rastan Saga, but as a home Amiga game, it is excellent. It is a leap forward into a whole new dimension of home entertainment software. At its launch at the PCW Show it had crowds absolutely stunned by its genuine arcade level graphics and action. There is still a distinct lack of arcade style Amiga games, and Road Wars will give the chance for Amiga owners to delight in some true arcade action.

T.H.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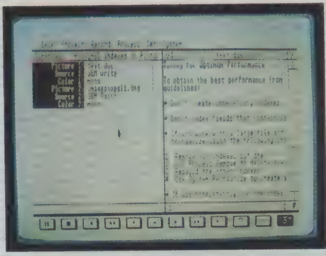

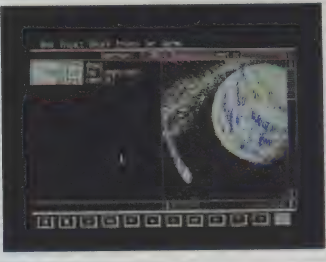

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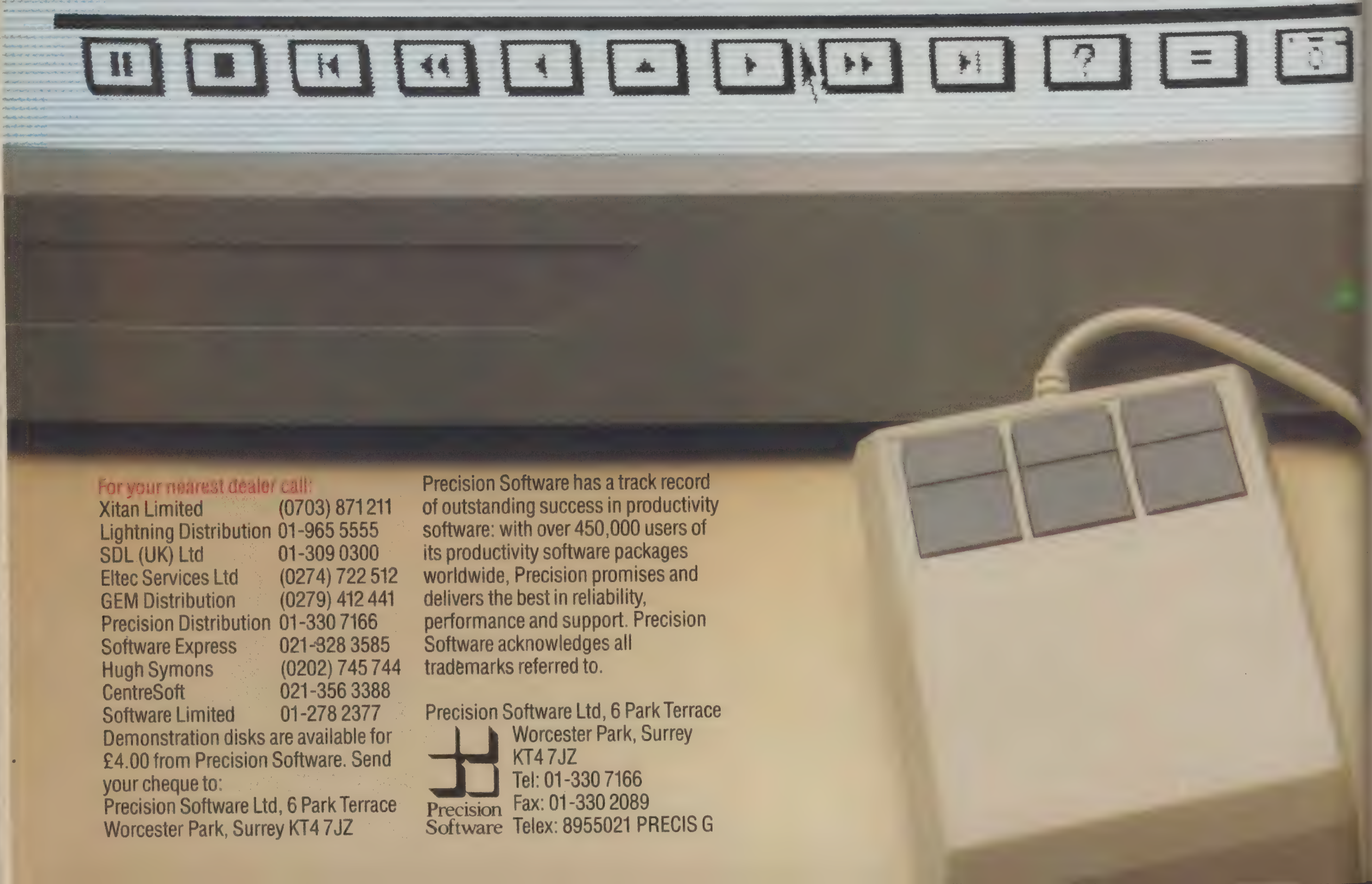

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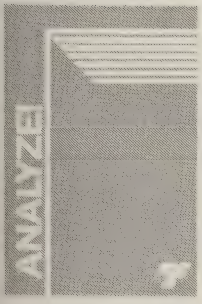

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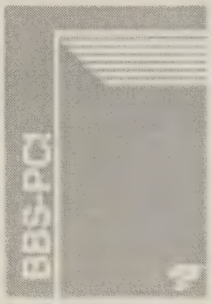

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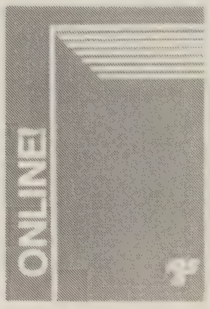

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AMIGA
IN THE BIG APPLE

The first Amiga Show . . . The Ami-Expo in New York. It is nearly five years since the Amiga was conceived by David Morse, Jay Miner and R.J. Mical. It is over almost two years since Commodore struggled to bring it to the paying customer. At last there was a Show at which the fledgling but already extensive Amiga community – users and suppliers – could meet and discover where the Amiga is and where it may be going tomorrow and the year after that.

New York is not, as some New Yorkers are supposed to believe, the centre of the universe. It merely serves the East Coast of the U.S. with a useful meeting point. So it was no use expecting a nationwide response on the part of the 100,000 plus Amiga owners in the U.S. As a measure of reference, the Sheraton Centre at which AmiExpo was held is about half the size of the Novotel where the U.K. Commodore Shows take place.

The hall was quiet and furnished not by the giant constructions that filled the Olympia for the PCW Show (see this CCI) but with modest and largely similar "booths" – around two and a half metres by three metres, curtained at the back in a uniform blue and white. It was all very serious and earnest unlike the noisy PCW and the brightly neon-lit Broadway just around the corner.

The atmosphere was appropriate. No-one was trying to impress with razzamatazz. Everyone who came was already in some way committed to the Amiga. They did not need show business. What they were interested in was colourfully appearing on the monitors' screens. And for the 8000 enquiring, seriously Amiga-involved visitors who came it certainly seemed thoroughly impressive.

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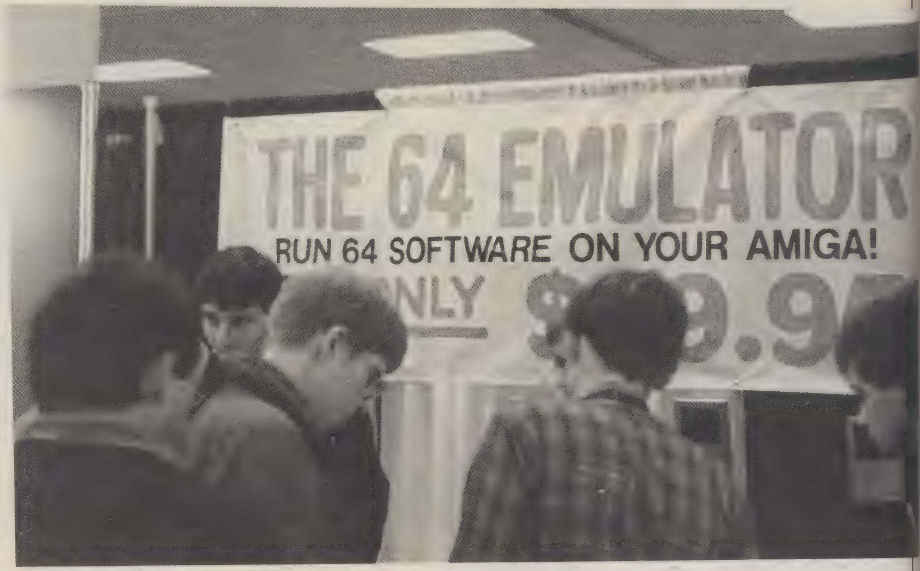
There were plenty of products, even 64 emulators, that showed the exciting dimensions that the Amiga is opening up. Graphics, music, DTP, productivity and expansion, there were in all of them developments that meant that the user is beginning to find in the Amiga not an oddball, odd-man-out computer for the freaky enthusiast but a machine that offers all round accessibility to the applications that everyone wants besides those that seem designed merely to show off the Amiga's remarkable technical skills.

Keynote

For the Show's 70 exhibiting companies and the visiting public Ami-Expo was an opportunity to be reassured that the Amiga dimension was not just an esoteric figment of their own and Commodore's somewhat fickle imagination but already an established and developing world. To buttress this reassurance, the Show's organisers, led by the baby-faced but formidably sharp and energetic Alexander Gros, had the bright idea of placing the Amiga within its historical context. They invited the people responsible for the computer's original technical creation, to give "Keynote" presentations, speeches and question and answer sessions that lasted for about an hour at the beginning of the first two mornings of the three day Show.

The two men most people regard as the geniuses behind the technical development of the Amiga – before even Commodore bought the company to get the machine – are Jay Miner, known as the Father of the Amiga, the leader of the whole team that created it and R.J. Mical who led the software side and developed the intuition interface, the heart of the Amiga. As neither works for Commodore any more, they did not need to take it easy on anyone including Commodore. The audiences much appreciated their frankness in describing the problems they faced not just from the technical difficulties but also from the terrible financial plight that the Amiga company was in before CBM rescued it.

They did not stop there though. They both described in considerable detail and with a great deal of relish their opinion of Atari, who had tried to buy Amiga before Commodore and the way that CBM had not altogether carried out their original vision of the Amiga.


THE 64 EMULATOR
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We found out a number of very interesting things including something that you will not receive an instruction for when you buy your Amiga. It seems that within the operating system there is embedded a series of codes that if you press the right keys will deliver a number of interesting messages among which there is one that informs you that the Amiga team created the machine but that Commodore messed it up, only the word messed is used in a rather stronger form. (Those interested in the messages are invited to apply to the Technical Editor of Amiga User with a S.A.E. and a cheque for £5.00 made out to Amnesty International. You will be told all we know!) The last day's speaker was Richard McIntyre, a present Vice President of Commodore, who not surprisingly was less entertaining but very informative of CMB's presently healthier condition and future plans.

In addition to the Keynote speakers, there was a programme of seminars that ran throughout the three days. The Amiga 500 and 2000 were introduced in detail. There were seminars on DTP, Desktop Video, Graphics including Laser Art and Design and Image Processing and 3D animation. Music was covered thoroughly, especially in one session called, very correctly in view of the Amiga's versatility, '20th Century One Man Band'.

There were a number of presentations and "Any Questions" style panels on serious applications such as programming and memory expansions and the use of the Amiga as a Desktop Workstation. There was also a session on Entertainment mostly about games. Jonathan Ellis from the U.K.'s Psygnosis was on the panel for this one which was not surprising as the Psygnosis Amiga hits Barbarian and Terrorpods are topping the 16 bit charts on both sides of the Atlantic.

If you wanted a picture of how the Amiga came about, where it is today and likely to be tomorrow, the programme of speakers and seminars gave it to you excellently for twenty dollars for the whole course. And, in addition, there was the Show itself.

Dazzling Effects

The first day the Show was so crowded that it was almost impossible to move around the single exhibition floor. This degree of public interest clear-took the companies showing by surprise. If products were available to buy on the booths, then they were sold. The public was obviously delighted to be able to see and to buy such a wide variety of recent or totally new Amiga products.

We asked one pleased looking visitor what he liked most and he pointed to the stunning Bernadette from Texas on the Byte by Byte stand and said "Her!". But he did admit that he had also bought the Sculpt 3D package that Byte by Byte was selling too. So big was the crowd at that stand, with a terrific Newton's Cradle demonstration created on Sculpt 3D (written by Eric 'Juggler' Graham) as big an attraction as Bernadette, that Jay Miner, Father of the Amiga, was unable to get to the stand and speak to Byte by Byte MD Scott Petersen and found himself actually paying for Sculpt 3D.

CONTINUED ON PAGE 129

AMIGA
IN THE BIG APPLE
CONTINUED

There were a number of graphics packages including Videoscape 3D – featured in Amiga User September – which showed that the whole graphics and video area is beginning really to take off for the Amiga. This is both for home entertainment and also professional uses. With frame grabbers like A LIVE, which captures, plays back and displays moving video images, genlocks at around only $180 (£120.00) and realtime digitizers such as a new one from Sunrize Industries and Newtek's popular Digiview, a whole range of usable and affordable software and peripherals is appearing. You can even title video with economically priced packages such as Zuma's TV Text, which the head of a New York video studio told us was already being used at a professional level. In fact there were at the Show many different professions represented who were finding the Amiga valuable assistance in business. One architect told us "The Amiga is doing for us what we had to take time on a $150,000 computer to do before."

Fleetwood Mac and Frank Zappa

The Amiga's musical capability is also finding substantial development. Mimetics have upgraded their Music Studio. They say that it's professional quality and is already being used by big name bands like Fleetwood Mac, Frank Zappa and Chick Corea. You can even combine it with a genlock to make your own pop promos.

Our favourite musical product was 'Music Mouse'. This is magically simple to use which lets even the rankest amateur create beautiful sounding and varied music. It is also delightful to look at (see Amiga New Releases in the issue). Among the other music products of note were Synthia, an $80 program and Exposure, a modular program of professional level at a higher cost. Desktop Publishing is about to be given a lift with two forthcoming high grade packages Gold Disc's Professional Page – a colour DTP package and Shakespeare which also looks very exciting. Both are priced at present around the $250.00 mark (£180). There were also other slightly lower level and substantially cheaper packages such as Pagesetter and Publisher.

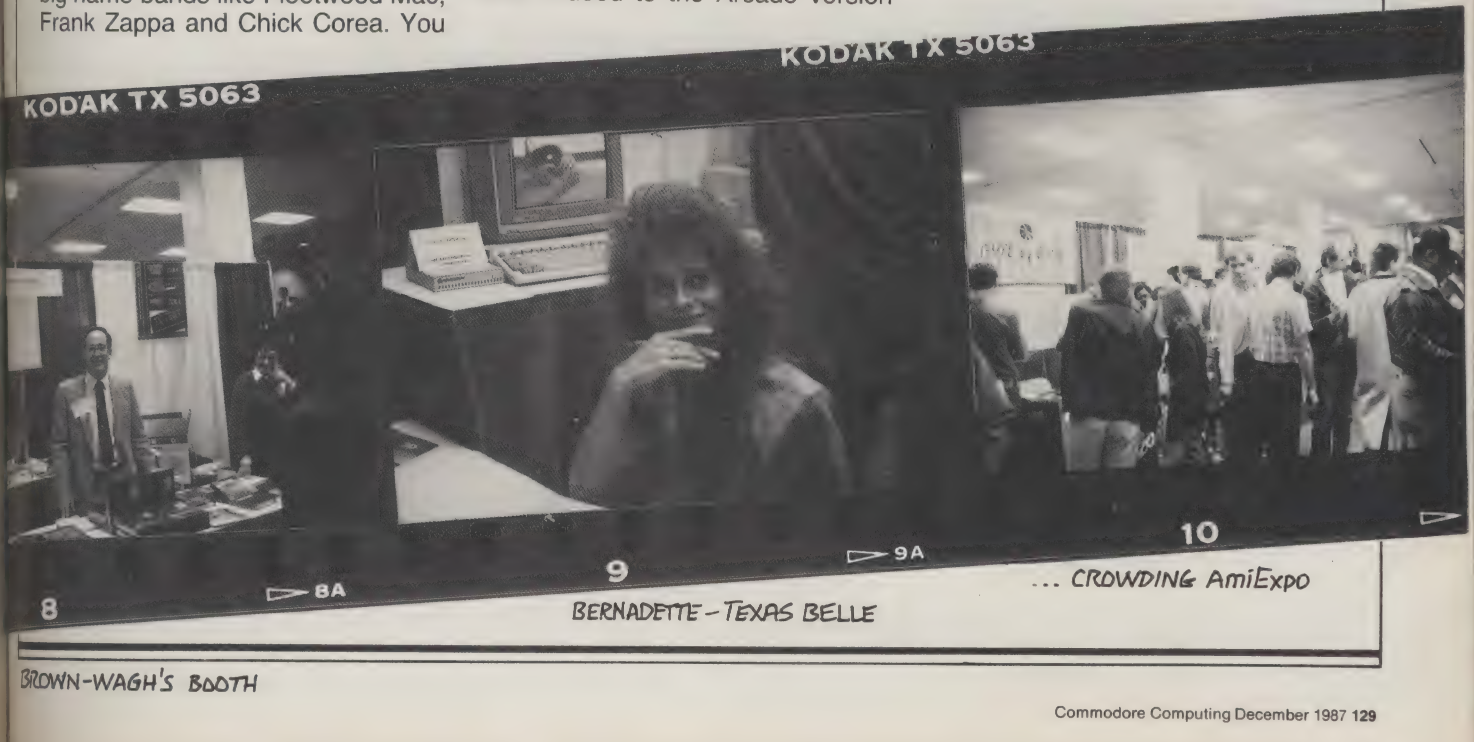
There were disk-based magazine from Jumpdisk and Vertex, Lattice and Manx with C Compilers, expansion systems that could take Amiga's up to 8Mg and hard disks offering up to 150Mg.

Arkanoid

On the entertainment side there were games from Psygnosis, Firebird with Guild of Thieves and the Pawn, Micro Illusions, creators of the hit Faery Tale, had a new game Firepower, Quasar, an ultra-fast highly-playable shoot 'em up from Canada and one certain chart hit, Arkanoid from Discovery. This is the same Taito arcade game that Ocean released on the 64. However on the Amiga it looks very close indeed to the Arcade version which is still in New York, we saw and around the world highly popular. Discovery are predicting a sale of 100,000 worldwide on this one, which would make it the biggest selling Amiga product yet. It will be priced at around £25.00, Discovery tell us.

That level of price was in no way beyond the pocket of most people who attended the Show. The visitors seemed generally over eighteen, prosperous and serious about the uses to which their Amiga could be put. They did not hesitate to spend the up to $100 – around £65 – that was being asked for many products.

They were clearly aware of what the Amiga could do for them and were willing to pay for it. They reminded us of the early days of the 64 before it became a machine being used by a really huge public. That situation may indeed be where the Amiga is now. Although now some 200,000 have been shipped by Commodore worldwide that is, in mass computer terms, still not a large number. The people who have bought it are largely second computer buyers. They want to grow with the machine and their attendance at the New York AmiExpo was in search of the way to make that happen for them. If this Show was the sign of the way that things are going in the Amiga world, it may not turn out much different in the end from the path that the 64 followed – even perhaps becoming the computer that will spread worldwide in huge numbers. Next episode in the Amiga Story . . . *AmiExpo. January. Los Angeles.*



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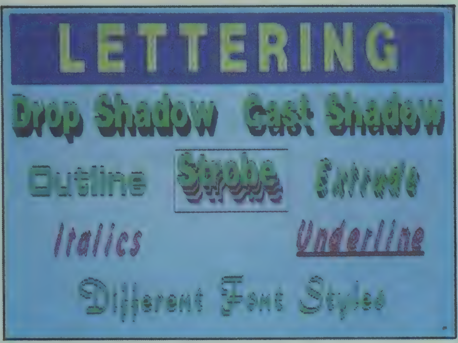

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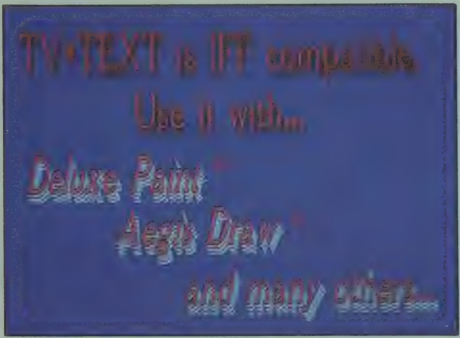

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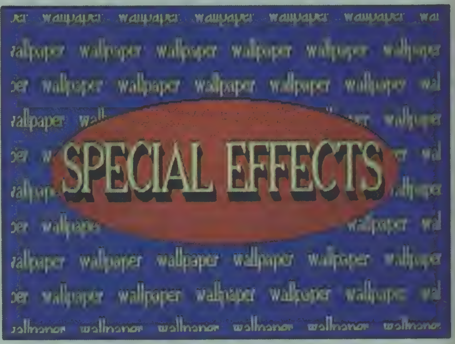

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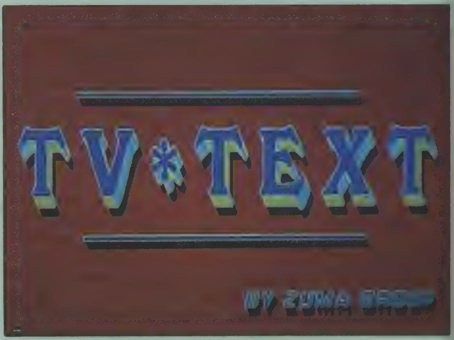

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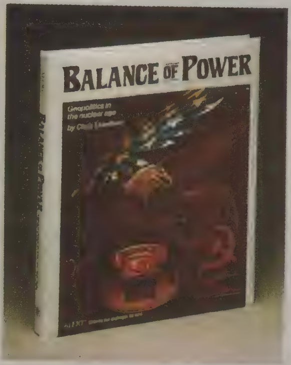
BALANCE OF POWER
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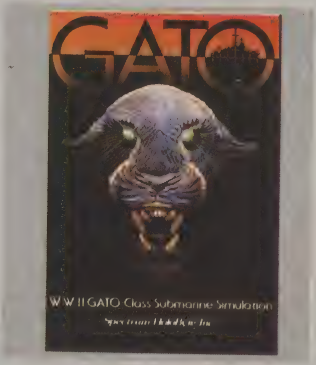
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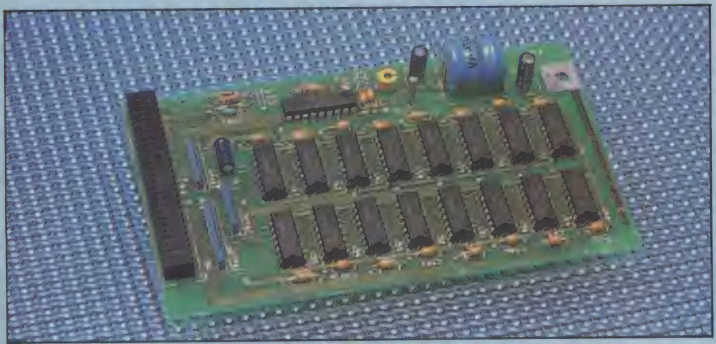

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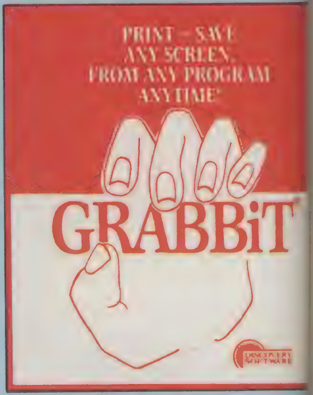

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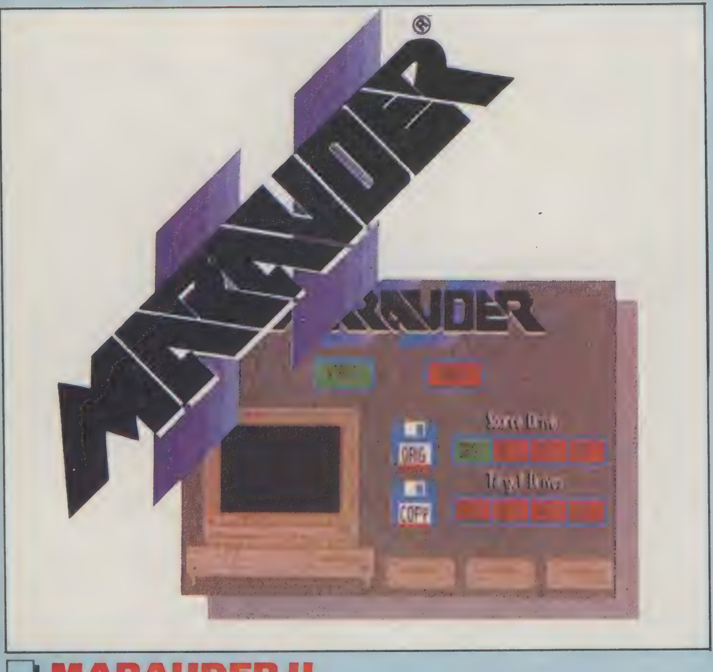

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OGRE

by Origin Systems

In the world of myth and magic, ogres are sub-human giants, slow and clumsy and with little intelligence but blessed with a tough hide and a brutish strength.

The ogres of the high-tech 21st century are far superior — they have greater power, are fast and manoeuverable, have almost impenetrable skins and possess an intelligence way above that of mere mortals. These ogres are man-made — they are the latest cybernetic supertanks, computerised killing machines of awesome might and ability, crewless but programmed to annihilate anything that gets in their way.

In this one or two player computer version of Steve Jackson's popular strategy board game, you are tasked with defending a command post against the onslaught of one of these mechanised, multi-weaponed, armour-plated Ogres. Convential forces such as nuclear-armed tanks, speed vehicles, howtizers and specially-equipped infantry are at your disposal.

The Ogre's objective is to wipe out your command post and to destroy as many of your defences as possible. Your job is simply to stop it.

The game is played using either mouse, joystick or keyboard; a handy reference card details use of the keyboard, shortcut commands and other useful information. In a one player game, the computer takes control of the Ogre — not daft, is it?

Defence Strength

The battlefield is represented on screen as a map of hexagonals, each hex representing an area of 1500 metres across. Although the full width of the map fits on to the screen, only half the length can be accommodated. You can see the other half immediately by clicking on the arrow at the top left and bottom left corners of the map, or advance the map up or down by one hex by clicking on the right corner arrows.

Some hexes are shaded or marked differently to represent craters and rubble. Nothing can move across craters (although anything can fire across them) and only Ogre and infantry can cross rubble.

Each combatant has four ratings: attack strength (a weapon's destructive power), attack range (effective distance a weapon can reach), defence strength (a unit's capability of withstanding damage) and movement (number of hexes a unit can move in any one turn).

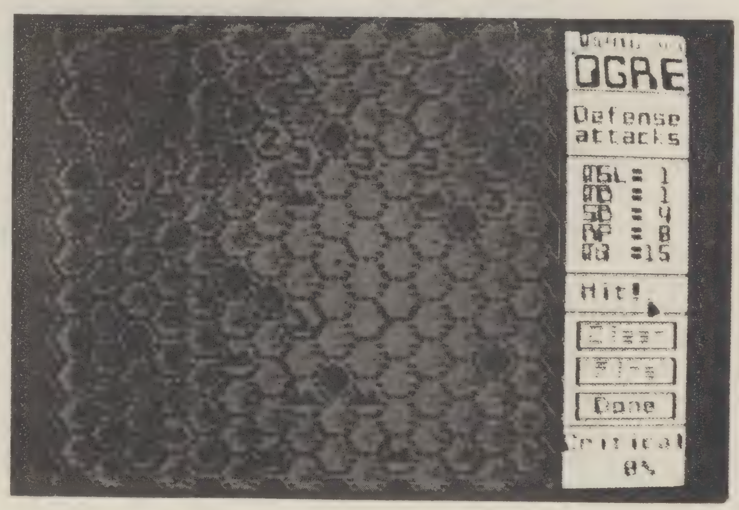
There are five predesigned battlefields to choose from but a built-in editor allows you to create or modify battlefields to suit yourself. A maximum of five of your own battlefield creations can be saved to disk. In addition, up to five game states can be saved and loaded back from disk at any time.

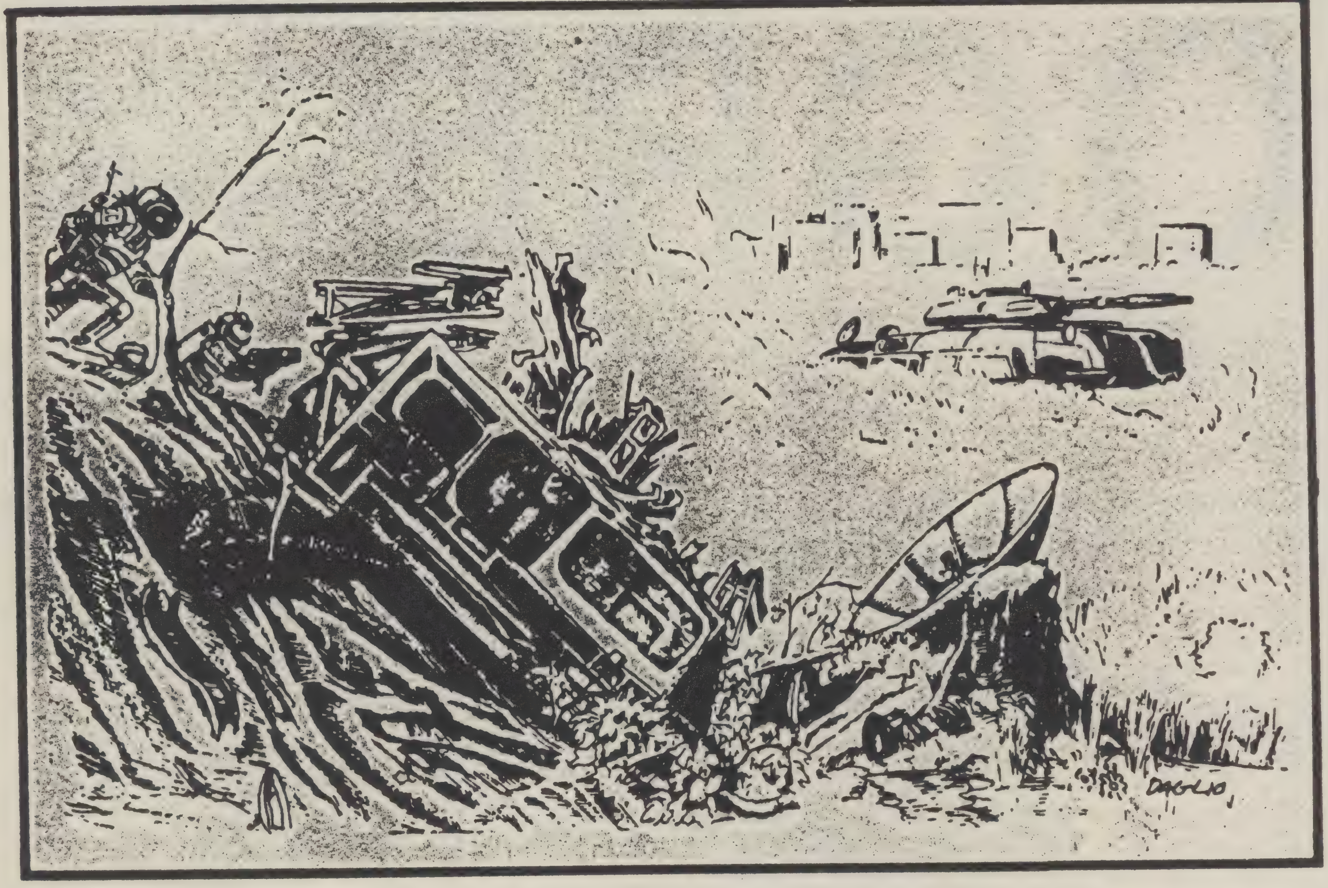
Forces opposing Ogre consist of heavy tanks, missile tanks, howitzers, ground effect vehicles (GEVs) and infantry.

The heavy tanks are as fast as Orge, except when navigating around rubble. The trouble is, a heavy tank has to get in close to Ogre to fire upon it effectively, leaving it vulnerable to almost all of Ogre's weapons, not to mention the danger of being crushed beneath Ogre's treads.

The missile tank is smaller, slower and less heavily armoured than its brother but it does have a good range, allowing it to pound away at Ogre while out of range of retalliation.

Howitzers have a long range and destructive fire power but they are all but defenceless. They can't move, either. GEVs are fastmoving but have a limited range and movement. Infantry travel in groups of one to three squads (6-8 men per squad) and are armed with conventional and anti-tank weapons and special battlesuits that allow them to cross rubble that would stop other armour units. Their attack range is severely limited and they are slow movers so if they get to the rear of Ogre, they'd better watch out that they don't get left behind when Ogre advances on the command post.





Ogre Escapes

As in traditional war games, the game evolves in a cycle of phases. At the beginning of a game, Ogre gets to choose its entry square but thereafter the sequence is: Ogre moves, Ogre fires, defence moves, defence fires, GEVs get to move once more. During the player's turn, all or any of his units may be moved and may fire. Movement and firing is accomplished by pointing and clicking on the desired hexes, pop-up menus and dialogue boxes.

A panel at one side of the screen displays the current phase of the game, the attributes and conditions of the pieces, command options and any game messages. One of the command options allows you to view the range of movement and fire of a piece — all of the hexes within a piece's movement value turn green and all the hexes within its firing range turn blue. In case you make mistakes or change your mind, there are options to take moves back and to deactivate any weapons aimed at a target — but these must be exercised before the next phase. A further option lets you group or split your infantry.

At the base of the panel, an indicator gives you some idea of the probability of killing the current target with the selected weapons. The map and display are continually updated to show the present state of the opposing forces.

A typical, single game can last between 1 and 2 hours and ends in one of three ways: then all the defending units are destroyed, or Ogre escapes off the bottom of the map, or all of Ogre's weapons and treads are obliterated.

Ogre comes on a single disk, handsomely boxed and complete with glossy 28 page instruction manual, a 28 page strategy guide, a reference card and your very own radiation detection badge.

The game offers a first rate challenge yet is quite easy to get to grips with, thanks to the well thought out design. Before or during a game, Ogre also lets you customise certain features such as sound (on/off), skip empty turns, reminders (on/off), modify message speed and set Ogre's skill level (3 levels). Sound effects and graphics are satisfactory without being particularly noteworthy. The inclusion of a battlefield editor ensures the longevity of the game and the player's interest.

All told, one of the better war strategy programs around. If this type of game is your forte then Ogre should be right up your alley. It's big and tough — but then that's just how an Ogre should be.

B.C.

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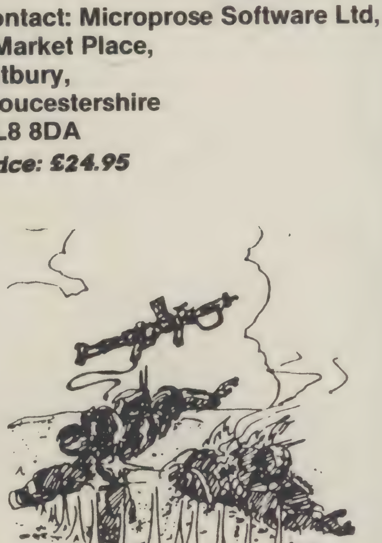

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EXPRESS PAINT

The Amiga's graphics capabilities have probably sold more machines than all the business programs put together. Artist and journalist Peter Lee examines the latest in a new breed of art packages aimed at the desktop publishing market.

Computer art is all around us. Every day on TV we're bombarded with phenomenal examples. And it's only since the introduction of the Amiga that home users have been able to approach the kind of graphics sophistication needed for serious work. Glancing down any software list instantly reflects the Amiga's bias towards graphics — so any new art program has got to have plenty going for it if it's to survive. Which is where EXPRESS PAINT from PAR software comes in. Comparing it with other paint programs isn't feasible, because while it shares many features common to almost all drawing utilities, it packages them, and innovative ones, in a new and interesting way.

Express Paint started life as Vdraw — a 'shareware' program available in Public Domain. That was around 2 years ago, since when it's been completely re-written and re-christened. It's totally icon driven, with colour and tool menus constantly displayed, input coming almost exclusively from the mouse, with key input kept to a bare minimum. On entering the program from either its own workbench, a workbench screen or the CLI you have to fill in a parameter requestor:— indicating such things as screen width, height, number of colours in the palette and overlays.

At this stage what's really innovative is that Express Paint uses the Amiga's under-used 'Extra half bright' mode to double the standard palette of 32 colours. So you can actually work with 64 hues. The manual warns that some 'older' A1000s may not be able to take advantage of these extra colours; but my A1000, which I bought a year ago, was fully compatible. A2000s and A500s are also all OK.

Clip-Art

Before you get carried away though, it's important to realise that the second set of 32 colours are dependent on the prime set of 32; altering the red, green or blue component of either will be reflected in its sister colour, so there aren't 64 independently editable colours. You can specify the number of colours you want the palette to contain from start-up; the few you choose, the larger the amount of memory left for the actual artwork. Screen width and height is restricted by available memory, and those owners with memory of 1 meg or more may have a 2-colour picture 2880 pixels wide by 960 high — which is about 4 VDU screens wide. Obviously to print this monster, you'd have to amend Preferences to alter the Aspect function to vertical instead of the default horizontal. Interestingly, you can launch into Express Paint by hi-lighting a previously saved brush icon or a picture, which opens up your drawing screen with the items you've selected in memory — very handy for often used clip-art, cutouts and the like.

I very much liked the option which allows you to either load the entire program into memory or use the overlay option, which frees more memory for graphics and loads the different utilities from disk whenever you need them.

Express Paint is also very friendly in allowing Overscan — the ability to use the Amiga's full screen depth (256 lines in Europe — only 200 in the US). This can be turned on or off from the Workbench, when the configuration is re-written to the disk so you always boot up in your chosen overscan mode. In use the program is straightforward, but drawbacks are all too apparent; that's not to say that it isn't value or money, but there are a few clouds to the overall silver lining. For instance when you invoke a grid to help with precise alignment, the grid is drawn on screen (as perhaps dots at specific intervals, or full grid lines), and becomes part of the picture — which means you have to through the chore of erasing it once your picture is complete. Another niggle is that you can't get rid of the menus to display an entire screen. Moving about the larger-than-screen image is easily done by using scroll arrows or keyboard, but if, like me you either want to photograph a screen or record it on videotape, you'll have to save it and use a slideshow utility (which isn't provided by the way). And although Express Paint allows fine detail to be executed in its excellent full-screen zoom window, the fact that the original-sized portion you intend editing is totally obscured by the magnified portion does tend to dull its usefulness. However, along with the 64 colour option and large drawing area, what does raise the power of the program are the desktop publishing options.

Text Flowing Paper

The program is certainly not a dedicated DTP utility, but along with its graphics manipulation comes the ability to create extremely professional-looking pages for such things as business reports, newsletters, handbills or posters — and multi-coloured ones at that. Text can be any ASCII file saved from a word processor, but it's easier to use the Workbench notepad; this can be opened while Express Paint is running, thanks to the Amiga's multi-tasking ability. Having chosen a font (the program comes with the usual Amiga defaults but allows as many different fonts as your disk or RAMdisk have room for) the text can be streamed into a pre-defined area, with complete control over justification and positioning.

One absolutely superb feature allows you to flow text around any irregular-shaped object. This facility alone lends a professional touch to any illustrated document. But in complete contrast, input from the keyboard appears clumsy by comparison; text is entered in a box which opens at the bottom of the screen, and once completed is positioned by means of the mouse. What this does allow for is text style changes after your words have been entered in the box, but if your line of

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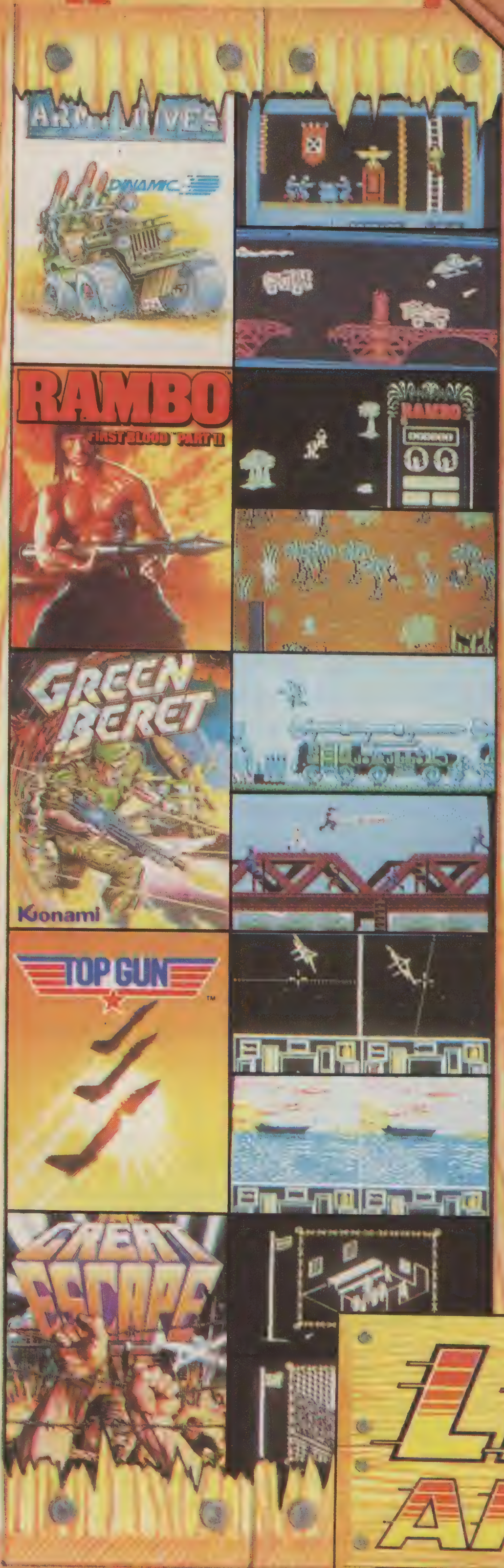

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TOP GUN

The "TOP GUN" game puts you in the pilot's seat of an F-14 jet fighter. 3-D vector graphics and split screen display allow one or two players to combat head to head or against the computer. Your armaments in this nerve-tingling aerial duel are heat seeking missiles and 20mm rapid fire cannon. Many skills have to be brought in to play such as reflexes, manoeuvring ability and accuracy to become the best of the best. "Top Gun" mavericks enter the danger zone!

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THE GREAT ESCAPE

The year is 1942, the place Germany. War has broken out and you have been captured and placed in a high security P.O.W. camp. Victory may be far away, so it is your duty to escape, but this will not be easy. It will take careful planning and much patience, culminating in a skilful and resourceful implementation. In the camp you are closely guarded but while you follow the daily routine you will need to slip away unnoticed to reconnoitre the situation and collect tools and materials necessary for your chosen escape route. There are many avenues of escape, some difficult, all certainly dangerous and each one requiring different skills or equipment.

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Screen shots taken from various computer formats

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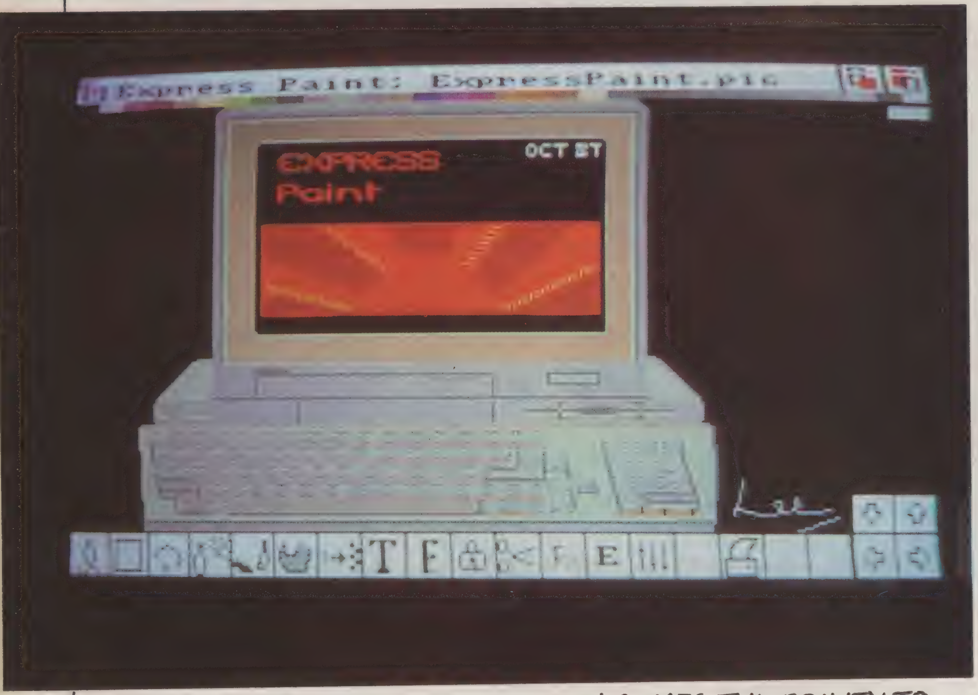

WITH ITS GRAPHICS MANIPULATION COMES THE ABILITY TO CREATE EXTREMELY PROFESSIONAL-LOOKING PAGES.

text is longer than the page width, you lose whatever doesn't fit. Font styles aren't reflected as you type, so you really don't know which font you're using until it's time for placing it on the screen. This inability to type directly on screen also hinders the use of vertical labelling, which has to be done painstakingly a letter at a time.

Multiple Cuts

Using the program as a drawing utility has been simplified by the excellent menu structure; the control panel which opens to show facilities for each of the available tools as they're selected offers many powerful functions.

A quick run-through should indicate the potential — lines, boxes, rubber-banded in any of 16 styles and four brush 'weights'; full rubber-banded position of circles, ellipses and arcs with pie-chart style wedges and a neat double-point curve option. You can also specify arrowheads to be drawn automatically at the ends of lines (for scaling and so on). Box control comes in a number of styles, including open, solid and complement (which reverses the existing colour); there's a spray tool with a variable spread and radius, and any colour's red, green or blue component can be edited.

Concentrating on Express Paint's more potent features, there's the ability to cut and manipulate any area of your drawing, from a small fragment to a whole screen (depending on memory constraints). Although cuts are rectangular (ie no lasso cutouts) you can in effect turn them into cutouts by using the program's facility to make any colour transparent. Multiple cuts (or brushes as they're also called) can be in memory at once — an exceptional advantage when it comes to routine work such as component placement on a PCB or room furniture lay-out. These brushes can be saved and re-loaded, and manipulated in a number of powerful ways, including full rotation and resizing, with the bonus of a 'ghost' option which reproduces the cut in a kind of dot mode. You can use a cut as a brush to give a continuous stroke, or simply stamp it anywhere on the drawing. These facilities are available in the FX tool; this area allows subtle manipulation of the currently selected cut including masking out unwanted colours, making them transparent, mirroring either horizontally or vertically, and stretching.

While Express Paint doesn't boast dual screens like some programs, it does allow you to 'protect' any sized areas, enabling you to then edit your drawing, secure in the knowledge that if you mess up, your original can be called back from memory. And by coming to grips with this useful feature, it's possible to part load other drawings into windows in your current work, and these can be merged onto what's already there if you like.

Another major series of options are available from the Fill tool; as well as solid colour and pattern fill (which uses the currently active cut) you can stretch the cut either horizontally or vertically to simulate perspective while filling. It's in this area that text flowing is controlled. And probably the key feature of the program — the print options. Having selected your printer from the Workbench Preferences, you still have enough control to alter the actual proportions of the dump, which has a nice facility for printing in the correct ratio to allow printers to produce circles correctly (instead of the more common fault which makes a circle print as an ellipse).

The manual is built-into the box, and has sections for the beginner as well as the expert; it's competently written, and gives step-by-step instructions I found very useful. A reference card is also included.

Conclusion

This program both enthralled and irritated me; one minute I was cursing it for using the same mouse pointer arrow as the workbench screen, the other I was marvelling at its text flowing power. By editing the pointer to, say, a crosshair from preferences, I found exact positioning was made easier. Use of the 64 colour Half bright mode is innovative and offers a splendid range of colours, but the inability to remove the menus was restrictive. Large-scale drawings are easily scrolled, and have the potential for some eye-catching graphic dumps. The program has enough worthy features to outweight the not inconsiderable shortcomings, and for the price it offers subtleties not available in one package before; my advice — test it before you buy.

P.L.

Contact: PAR Software Inc, PO Box 1089, Vancouver, Washington WA 98666 USA. Price £58.00.
UK Distribution: Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3RN. Tel: 031 557 4242.

MAXIPLAN 500

MaxiPlan 500 is designed for a 512K memory environment without sacrificing any of the features which makes MaxiPlan the most powerful and easy-to-use spreadsheet program for the Amiga. Named Spreadsheet of the Year for 1986 by a poll of Amiga Users Groups, MaxiPlan will soon become your choice for spreadsheet analysis, database management, and business graphics.

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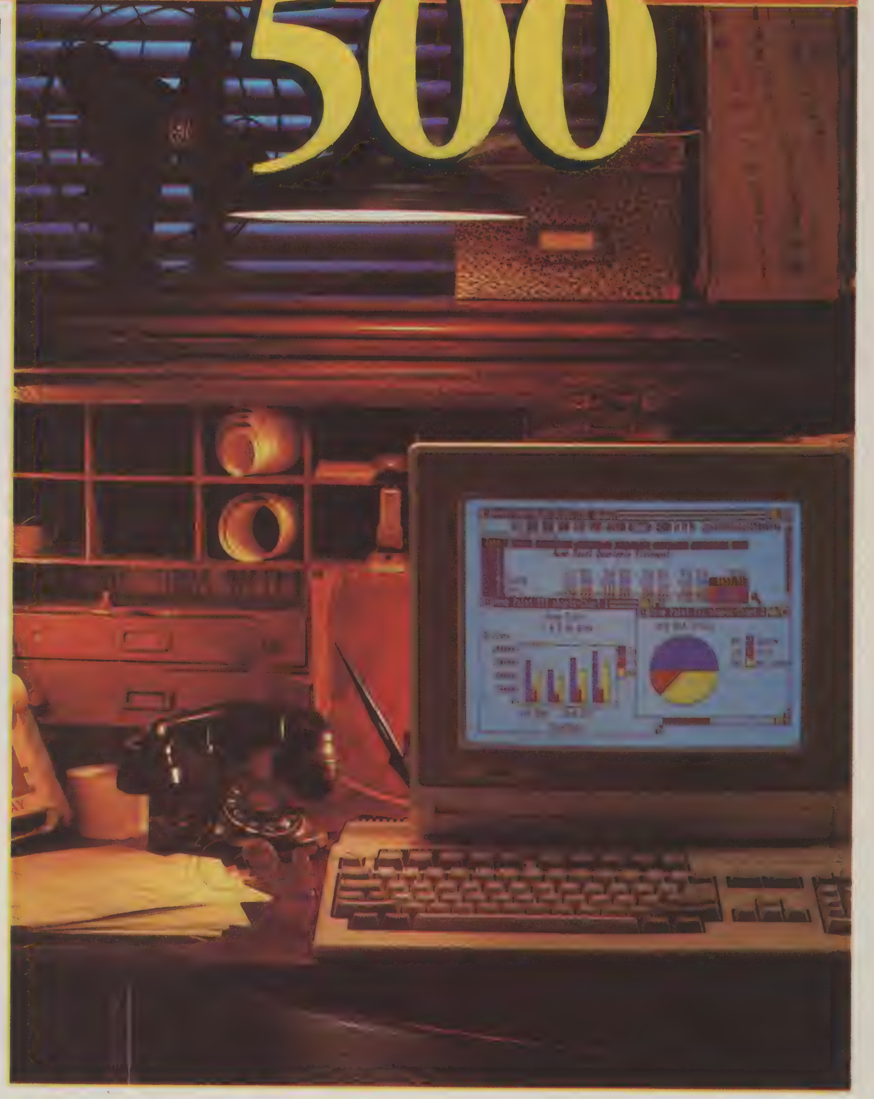

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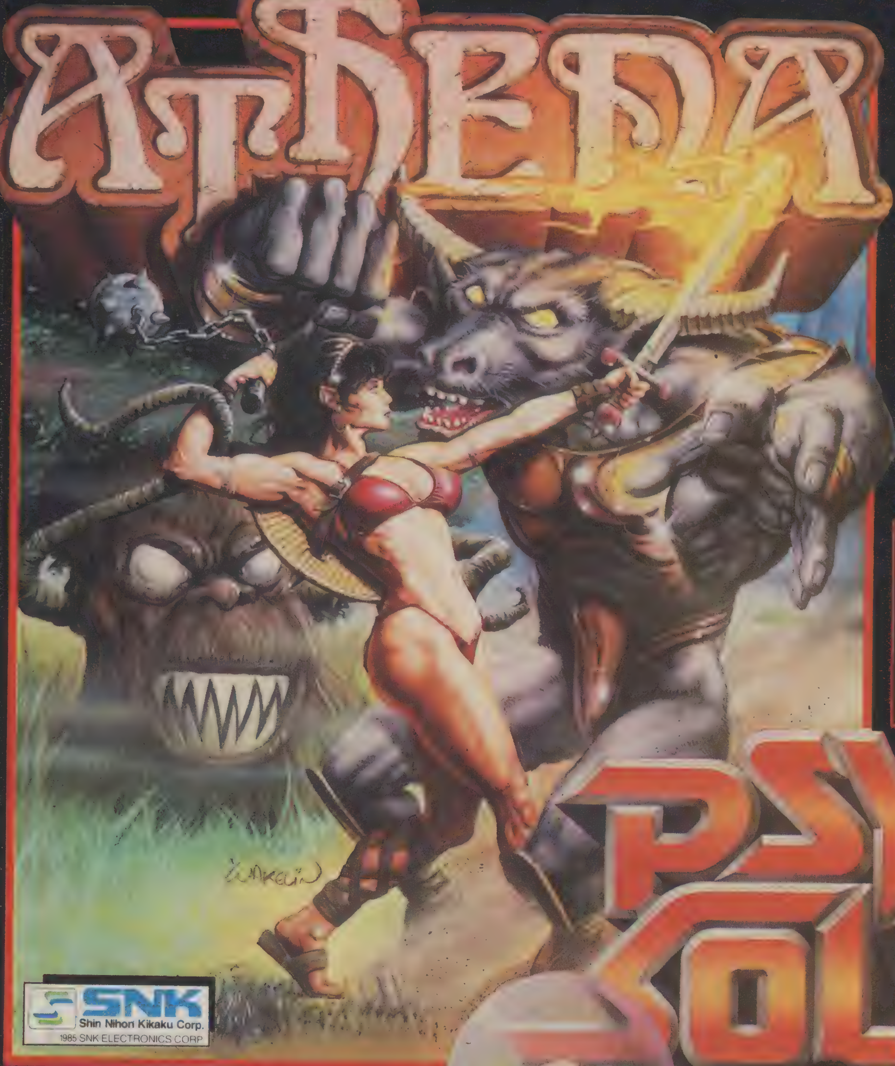
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Her mission, to enter the last world and slay its evil guardian, but the last world is seven worlds away on a long and dangerous journey through the worlds of forest, cavern, sky, sea, labyrinth and hel each having its own formidable guardian which must be overpowered and slain. Collect armour and weapons but beware the energy sapping poison for which only secret medicine is the cure. Superlative graphics and arcade style action game pl add up to a great package for the coin-op kings.

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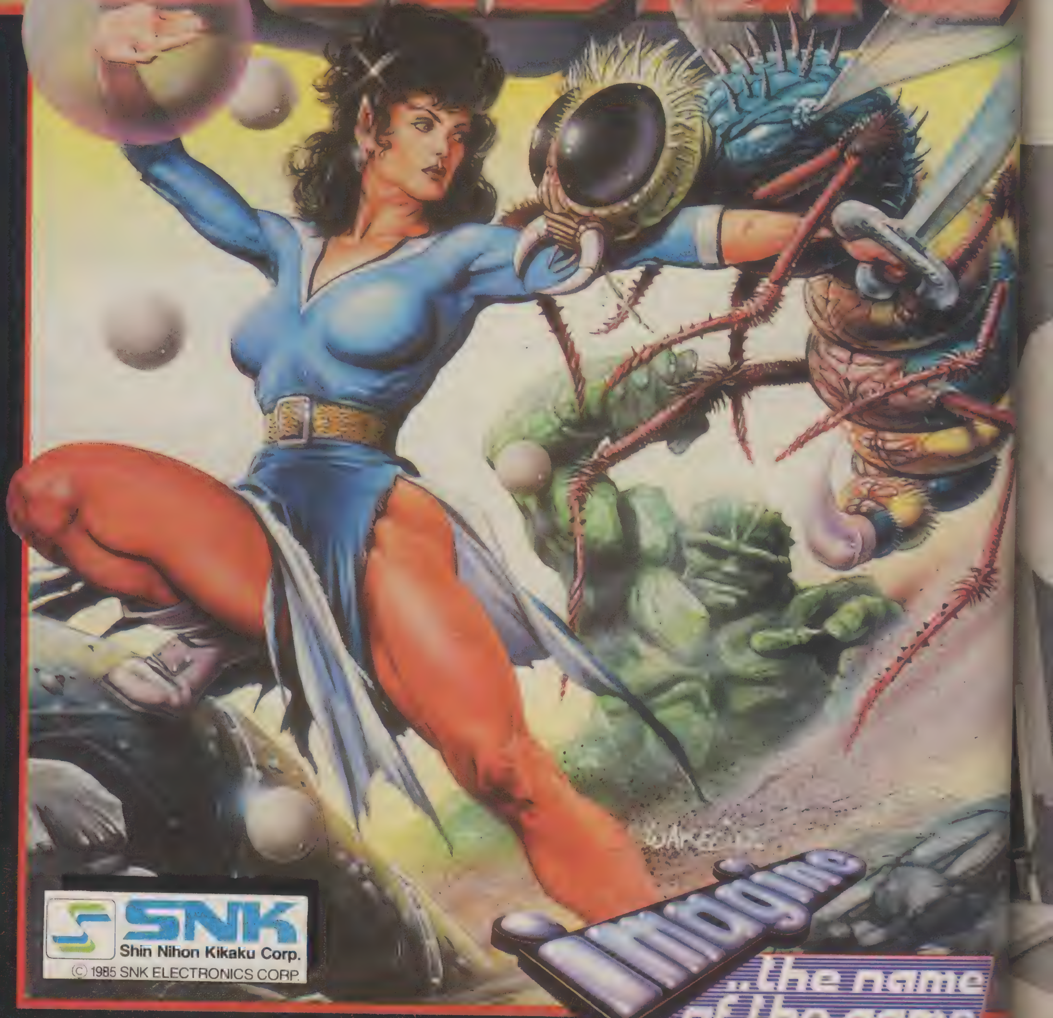
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Athena isn't finished yet Physco Soldier, the sequel, is another world. Athena has changed and she has a friend. She is Physco Soldier with a thirst for action and adventure and when her mission is complete you just won't believe the ending — a surprise you can't afford to miss! A great game, tipped for the top, from the SNK arcade label.

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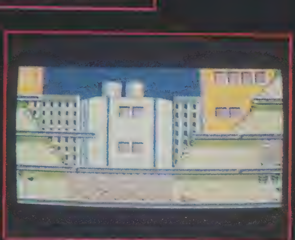

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PREVIEWS

ELECTRONIC ARTS

EA's move into the European market doesn't mean that they are just bringing over the old titles that never crossed the Atlantic before. They are creating a growing stream of new and lively products which they are releasing in quick succession. They seem to be designing them to satisfy all tastes, from the more serious flight simulator enthusiast right across to the RAD street action freak.

We have got hold of three of their forthcoming releases to let you know what you'll probably be playing in the next few months.

Yeager's Advanced Flight Trainer

Chuck Yeager, as everyone who saw the hit film "The Right Stuff" will know, is one of the greatest flyers of all time. Totally confident of his flying skill and the rightness of his approach, he fought as much with the authorities as the forces of gravity and the extreme dangers of sound-barrier cracking speed. Apparently fearless, he declared "The real hero is the test pilot who somehow manages to survive . . ."

EA's Advanced Trainer, programmed with Yeager's full collaboration lets you learn how to carry-out take-offs and landings and stunts like aerolon rolls, Cuban 8's and even hammerhead stalls. You can also try daredevil speeding through gates, zipping in and out slaloms and hurtling round skyscrapers. Not for the faint-hearted these!

BRIG. GENERAL CHUCK YEAGER AT THE CONTROLS OF HIS NEW COMPUTER SIMULATION, CHUCK YEAGER'S ADVANCED FLIGHT TRAINER

There are 14 different aircraft you can pilot including mach-speed and experimental jets. The aerodynamics of the computer versions are claimed to be accurately represented of the 14 aircraft and you have 10 distinct viewpoints from which to watch your own performance, which if it is good enough is assessed using authentic test pilot evaluation charts. You can use "black box recorders" to save your best stunts and air races.

Chuck Yeager's Advanced Flight Trainer has been very successful on the PC range and is now coming out for the 64/128. Price £9.95, £11.95, £12.95, £14.95.

Skate or Die!

RAD magazine — the UK's top street sports publication — tells us that they used to be called BMX Action Bike. Why did they change their name? Well, it seems that they are jumping onto the returning bandwagon — or skatewagon might be a better term — of skateboarding. The boards that were hip a few years ago are back again snazzed up, bestickered and totally RAD. The word is that you Go skate or Go home, Skate and Destroy, or as EA lays it down — Skate or Die!

Their new computer game takes the turn-again fashion and smashes those boards clean through your screen. There are three real aggro nasties for you to face. You have to cream Poseur Peter, wreck Aggro Eddie and then you are ready to take on Lester. Just plain Lester is stupid, mean and ugly. And if that isn't enough you are in for a surprise 'cos he's bionic, too.

There are five events when you hit the skating streets — you can smoke the half pipe, roaring up and down the ramp; you can go head to head against up to three other skaters in jousting with death; you can karate chop your way down the toughest alley on the block or you can go freestyle or take on the high jump and frighten yourself to death on the downhill.

Skate or Die! was created by Michael Kosaka, Stephen Landrum and David Bunch. Together and separately they can take credit for such hits as Temple of Apshai, Destroyer, GFL Championship Football and the Epyx smash Summer Games.

Skate or Die! must be worth taking a look at. RAD Magazine is carrying a sticker for it on the cover of a forthcoming issue. (It will have to be good to get Nick the Office Skatefreak away from his latest favourite. He sat down and played with Jack the Nipper II for a whole day. Is that a record for someone who sports an Anarchic Adjustment Tee shirt and believes that RAD spells "Read and Destroy"?)

Skate or Die! will hit the streets in December priced (U.K.) £9.95 (c) £14.95 (d).

Mini-Putt

If you don't like flying and skateboarding doesn't turn you on, EA says "How about sports?" No, it is no ordinary sports simulation though. It is Mini-Putt — a fun more than a serious game. In Mini-Putt you'd better expect the unexpected. There's a whole variety of oddball courses where there are hazards and obstacles that no-one in their sane mind has ever seen on a course on this planet. And the problems often just spring to life when you least expect the. A serene putting green can suddenly leap and gobble up your golf ball!

You see a three window display — the play area, a general overview of the green and a close-up of Mini-Putt Pete, the hacker you embody.

EA claims that Mini-Putt not only tests your skills with joystick but that it ends up testing your sanity (which is not going to happen around here! We'd all fail!) Mini-Putt is the first product released by EA from Accolade since they took over that renowned software creators representation in Europe. It will come out shortly on disk for the 64/128 at £9.95 in the U.K.

MS-DOS AND THE AMIGA

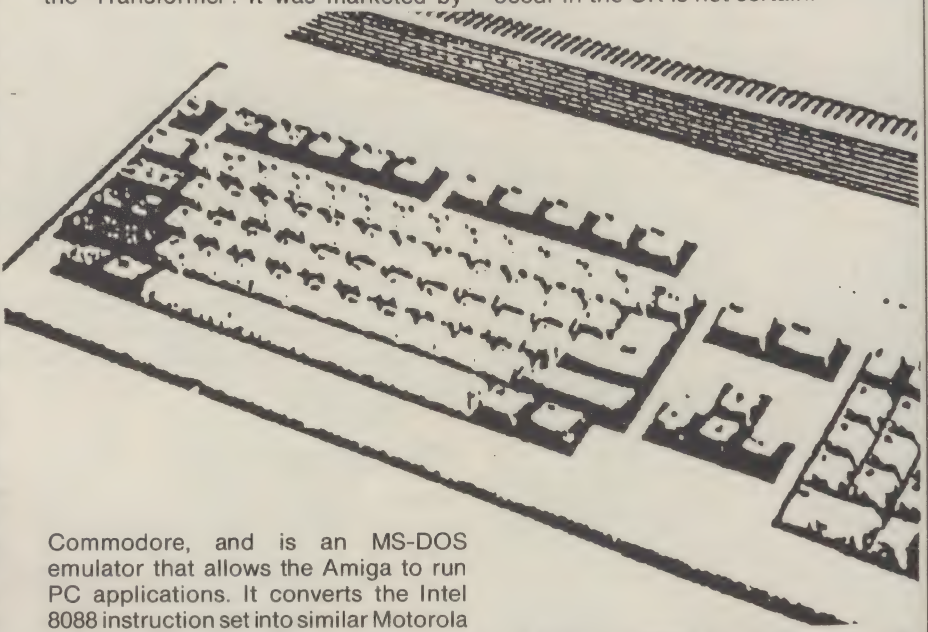
by Kevin Stevens, secretary of the UK Amiga Users Group

As most people are probably aware, the Amiga 2000 is capable of running MS-DOS software by the installation of a PC emulation card and 5" disk drive. The emulation card can virtually be regarded as a computer within a computer, it being an IBM PC clone which fits onto the Amiga 2000 expansion bus and uses an Amiga screen or window for its video output, and the Amiga keyboard for input. When installed, the PC processor (for XT compatibility an Intel 8088 or for AT compatibility the Intel 80286) and the Amiga processor (Motorola 68000) can both be operating at the same time, working on two (or more, in the case of the Amiga) different tasks. The machine operating in this state can be said to be 'multi-processing' and is different to multi-tasking in that the time given to a particular task by a processor is not divided between the tasks in the system, as they can access their own processor.

The advantages of running more than one processor at once may not be immediately apparent, so I will explain further. Because all of the input and output for the PC emulator is done via the Amiga architecture, information stored for use with a PC program can be easily transferred to an Amiga application, and vice versa. Also, because both processors can be running at once, a PC application can be running in the background either printing, or sorting a database or maybe calculating a large spreadsheet all with a minimal amount of 68000 processor time being taken. As the PC emulator can be pushed out of the way onto its own screen and has its own RAM to operate with, the Amiga can be running at almost full speed and can be used to run other tasks without interferring with operations on the PC emulator. These facilities can all be put to good effect for those people requiring access to an IBM PC clone to run software they already use (or need to use) on a PC. It also allows Amiga owners to use applications that are not presently available for the Amiga and transfer the information stored by these applications to the Amiga for use in other Amiga software. The Amiga 2000 also has 4 IBM standard expansion slots as well as centronics parallel and serial RS232C ports which can be used by the PC emulator for internal and external peripherals such as modems, printers, local area networking cards, hard disk units (which can be accessed by both the Amiga and the PC emulator) and most PC cards.

These capabilities have, of course, been available for the Amiga 1000 using the Sidecar device. This peripheral has the disadvantage that the Amiga 1000 has only one expansion port which Sidecar is installed on to, therefore blocking any further expansion. The Amiga 2000 has 5 expansion slots, two of which can be used for installation of a PC emulator (or 'bridge card' as it is often referred to).

But what of the Amiga 500? Those you who have followed the Amiga since its release may have heard of a piece of software sold mainly in America called the 'Transformer'. It was marketed by Commodore, and is an MS-DOS emulator that allows the Amiga to run PC applications. It converts the Intel 8088 instruction set into similar Motorola 68000 instructions or groups of instructions and, although significantly slows down MS-DOS applications, allows the use of MS-DOS programs on the Amiga. It has the disadvantage that the Amiga operating system cannot be accessed at the same time, but for those requiring the occasional use of MS-DOS, is quite adequate for most purposes and is said to be more compatible than some PC clones! The other drawback of the Transformer was that it only worked on Kickstart version 1.1 which cannot be loaded into the Amiga 500 or Amiga 2000 because Kickstart is a ROM as opposed to a write control store on the Amiga 1000. Help is at hand though, thanks to a public domain program that corrects the necessary problem, and allows the Transformer to operate under Kickstart version 1.2.



I am reliably informed that Commodore UK intend to market the Transformer in the UK in the very near future, which will allow all Amiga owners to try out and use MS-DOS on their machines. It will be necessary to transfer any MS-DOS applications into $3\frac{1}{2}$" format or attach a $5\frac{1}{4}$" disk drive to your Amiga. I believe that Commodore in America sold the Transformer with a $5\frac{1}{4}$" disk drive unit, but whether that will occur in the UK is not certain.

Anyone wishing to contact the UK Amiga Users Group concerning MS-DOS and the Amiga, or any other Amiga related topic should do so by writing tous at 66 London Road, Leicester LE2 0QD. Tel: 0533 550993. Our bulletin Board (TABBS) is on-line between 6.00pm and 9.00am on 0533 550893 and we have an area on Compunet (ID AUG). We can also be contacted on BIX (ID UKAUG), Prestel (ID 053355093) and Telecom Gold (ID MIK703).

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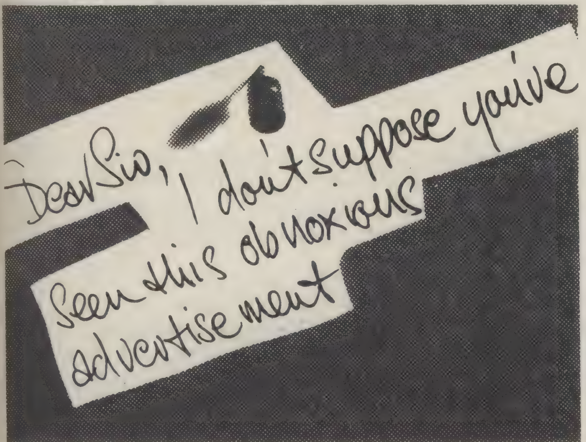

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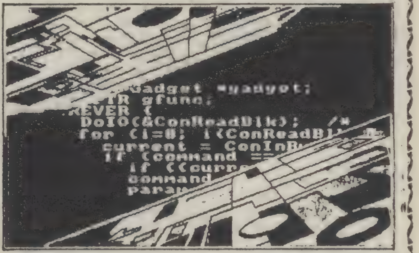

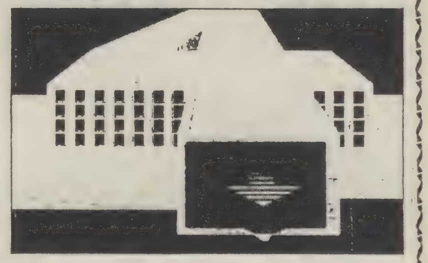

When Commodore sent out the first issue of "Kickstart — the European Technical Journal" it was hailed as the first thing to explain the machine in a way which was comprehensible to a human being, instead of just to another Amiga!

The Commodore Amiga is probably the most advanced wide-market Microcomputer ever produced, both in terms of hardware, and in terms of the system software. The Amiga uses a state-of-the-art message-passing multi-tasking Operating Environment — while this is responsible for a lot of the machine's power, it is also a rich source of confusion to programmers used to comparitively primitive micros.

Aware of this, Commodore commissioned Ariadne to produce the "Kickstart" journal, which was distributed to all European developers. Particularly well received were a series of feature articles, which explained the key concepts of the machine in a way which didn't assume you knew about them already, and which were designed to complement the official documentation as much as possible.

Now with the release of the A500 another group of programmers are eagerly approaching the Amiga. Ariadne have therefore taken the feature articles from Kickstart, revised and updated, them, and added new material appropriate to a wider audience — the result is this book.

Commodore Business and AMIGA User

The 'Kickstart' Guide to the Amiga £12.95

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S.D.I.

A Cinemaware release

SDI is the latest Cinemaware release following on from Defender Of The Crown, can it live up to its predecessor? Andy Moss CCI's resident Adventurer finds out.

There's no doubt in my mind that Americas' "Star Wars" project is flavour of the year in home software entertainment lately, and no wonder. What a glorious storyline for any would be games designer, the big US of A versus the Soviets in a classic encounter of bluff and counter bluff in this nuclear age. First there was Raid Over Moscow, followed by Theatre Europe and then High Frontier, each a different slant on the same theme — nuclear confrontation at the highest level.

Now enter Cinemaware, who are languishing in praise over their mightily successful (and deservedly so) Defender Of The Crown, and the less successful but still popular Sinbad. They need a new action packed storyline to continue their movie interaction style, so what better than to out star all the other Star Wars games by bringing out one of their own?

So SDI was born, and contains all the hallmarks of a blockbuster movie, two star crossed lovers holding the key to the survival of the Human race. He is the young General assigned to the SDI Space Station, she is a beautiful Russian Commander hopelessly caught in the crossfire when ruthless KGB fanatics stage a coup in the Soviet Union, and launch a nuclear attack on America. Can he get her out alive, and together save mankind from destruction.

Given the exciting plot, given the graphical and musical programming abilities of the Cinemaware team as seen in their other releases, and gives the Amigas' proven hardware capabilities we should have another hit on our hands. Unfortunately SDI just doesn't come up to the dizzy heights we expect. Yes there are some very pretty screens, the inside of the space station for instance and the Presidents committee and even the brilliant title screen. But taken overall the game is too bitty, it doesn't allow you to get into it for long enough, in fact you can be killed off in a matter of minutes, not clever when you have just shelled out over twenty pounds. No, it's just too hard too early on. The action sequence after you fly out in the space ship is disappointing, jerky movement and over fussy controls make for a very frustrating time.

For the uninitiated, SDI stands for Strategic Defense Initiative, which is a system that literally shoots enemy missiles out of the sky before they reach the good ol' United States, by firing lasers from numerous satellites placed in orbit. After the news of the Soviet revolt, Russian fighters are soon spotted beating a path for the US satellites to try and knock them out before the Nuclear attack starts. Your mission is to fight the planes in your small space fighter, whilst at the same time dock with damaged satellites in order to administer repairs, and then if any missiles are spotted (you get a two minute warning) you have to race back to the space station and man the SDI controls to aim the lasers at the missiles in a sort of MISSILE COMMAND game. On top of all this, Natalya your Russian girlfriend and Commander of the Russian space station needs to be rescued. There is of course the added problem of your ship running out of fuel . . .

Cinemaware assure me that the 64 version will be a lot more playable than the Amiga, they have realised the problem and changed the program accordingly. 64 owners — wait and see.

The best way to describe SDI is that it is a mixture of Elite, Missile Command, and Prohibition (the Russian Commanders' rescue sequence where baddies jump out from hiding places shooting from the hip) all cobbled together in an attempt to make a good game, which for me they fail to do.

I'm going to wait for King of Chicago.

A.M.

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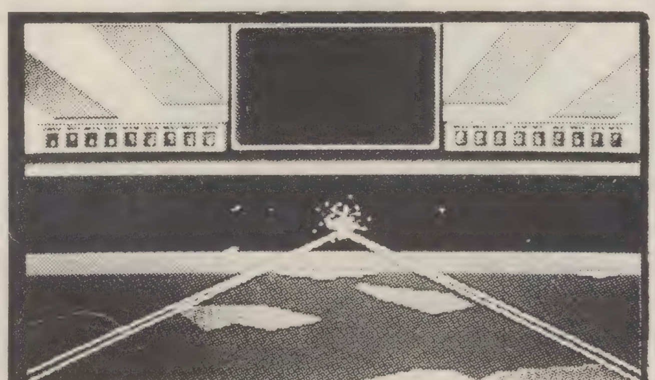

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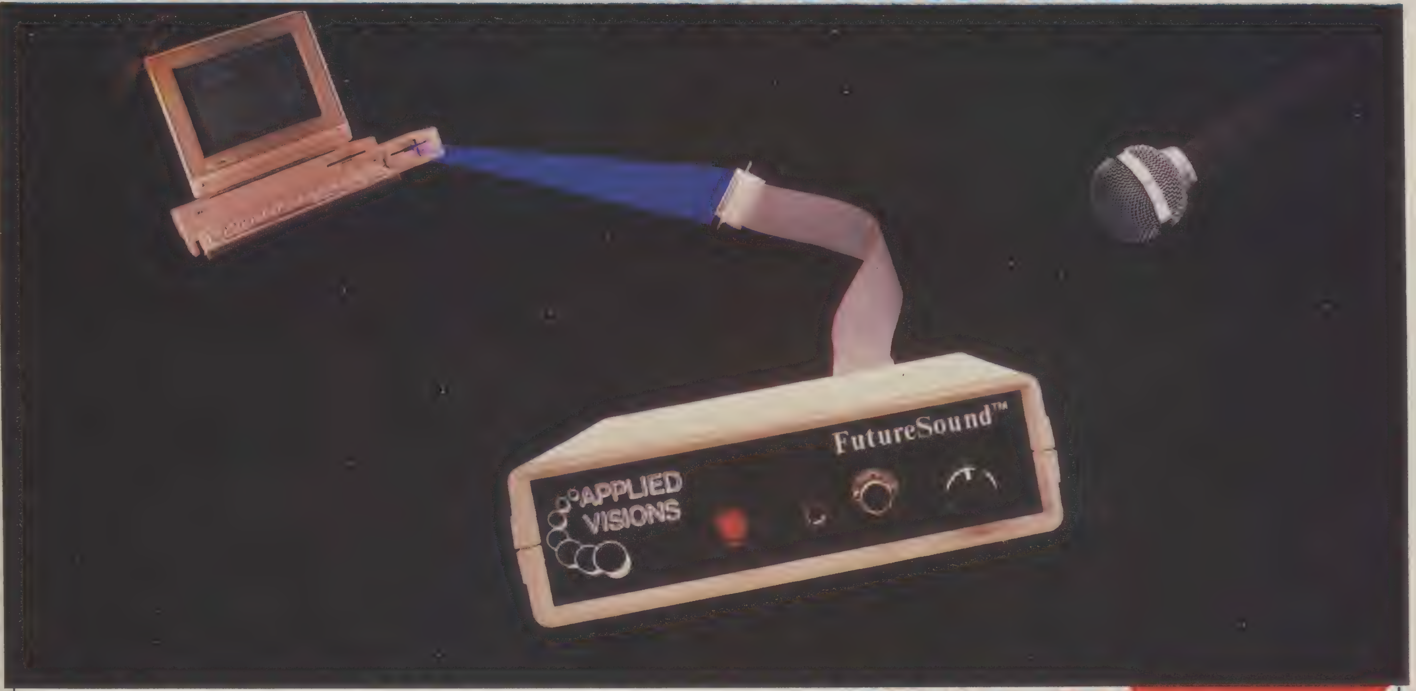

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QUOTE
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It comes complete with microphone, interface, good software and decent documentation. It is a good buy and may be the choice digitizer for programmers who need sound effects in their programs.

DELUXE NEWS MAY 1987
QUOTE
The OPEN THE POD BAY DOORS HAL Line that appears on the Deluxe Video demo disk was actually one of the very first recordings ever made using Futuresound.
Futuresound the premier audio digitizer for the Amiga.

CCI JANUARY 1987
QUOTE
A sound created with Futuresound and saved in IFF could be read into INSTANT MUSIC or DELUXE MUSIC for further manipulation.
Using Futuresound is simply a matter of making certain that everything is properly connected and then loading the software.
If Deluxe Paint made you look, then Futuresound will make you listen.

YOUR AMIGA JULY 1987
QUOTE
Futuresound is a professionally presented product, from the solidly built hardware to the neat manual with large type and clear diagrams. If your hobby stretches to £175, or sound sampling is something you need to achieve on the Amiga, then I am unaware of a better way of performing it.
By Anne Owen

FUTURESOUND is fully IFF compatible (actually three separate formats are supported) your sounds can be used by most Amiga sound applications. Such as Aegis Sonix, Deluxe Music Construction Set, and Deluxe Video Construction Set from Electronic Arts.
With Futuresound and Deluxe Video your video creations can use the voice of Mr Spock, your mother in law, or a disturbed super computer.
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More ANCO Games

ANCO have announced a new set of Amiga games for near future release

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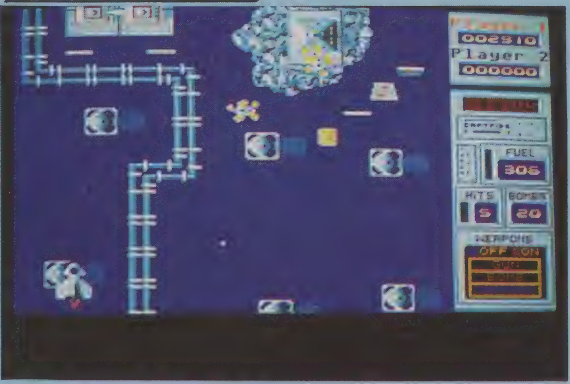
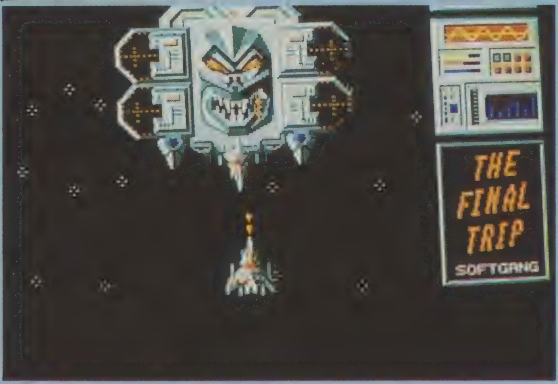
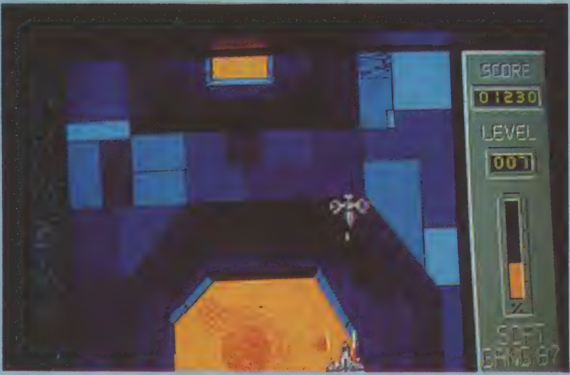
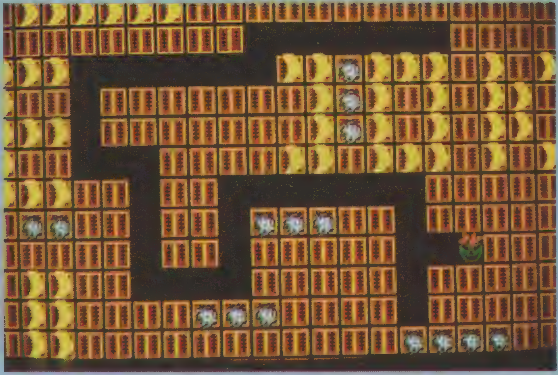


FINAL TRIP...





VADER...



DR. FRUIT...

SKY FIGHTER — AMIGA *GOLD RANGE £14.95*

The central power station lies deep inside heavily defended and fortified territory. There are nine sectors to be flown across, intelligence to be gathered, and passed to the command control before the target is in sight. The target lies fifty metres below ground and the only way to destroy it is to drop a bomb accurately into one of the three ventilator shafts. Bombing accuracy is vital throughout as the fuel on your journey can only be replenished by the precision bombing of the fuel dumps.

Joystick or Mouse Control

FINAL TRIP *£9.95 AMIGA*

The FINAL TRIP is a multi screen shoot 'em up. Anticipation of the enemy movements, fast and accurate shooting are of prime importance. As the enemy Battle Ships bear down on you, you have only a short time to probe their weakness and destroy them. There is no escape.

1 or 2 Players Option

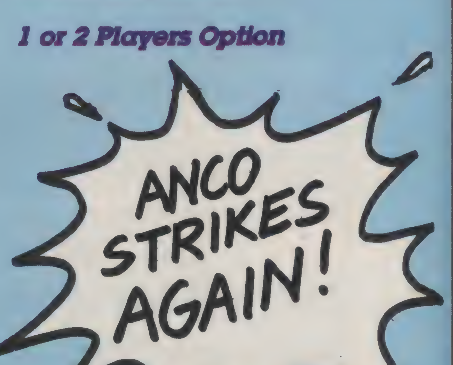
VADER *£9.95 AMIGA*

VADER, the valiant defender of his own planet is on the most difficult mission of his life. The planet is under attack. The enemy attack in numbers and their pattern of attack is unpredictable. Every enemy shot weakens his shields but he must survive by the accuracy of his fire power and the dexterity of his movement.

DR. FRUIT *£9.95 AMIGA*

Andy has an insatiable craving for fruit, so much so that he was nicknamed DR. FRUIT. He tunnels his way into the orchards, moving from tree to tree, to strip them bare of all their fruit. He has to be quick and dig his tunnel with care to avoid the guards.

1 or 2 Players Option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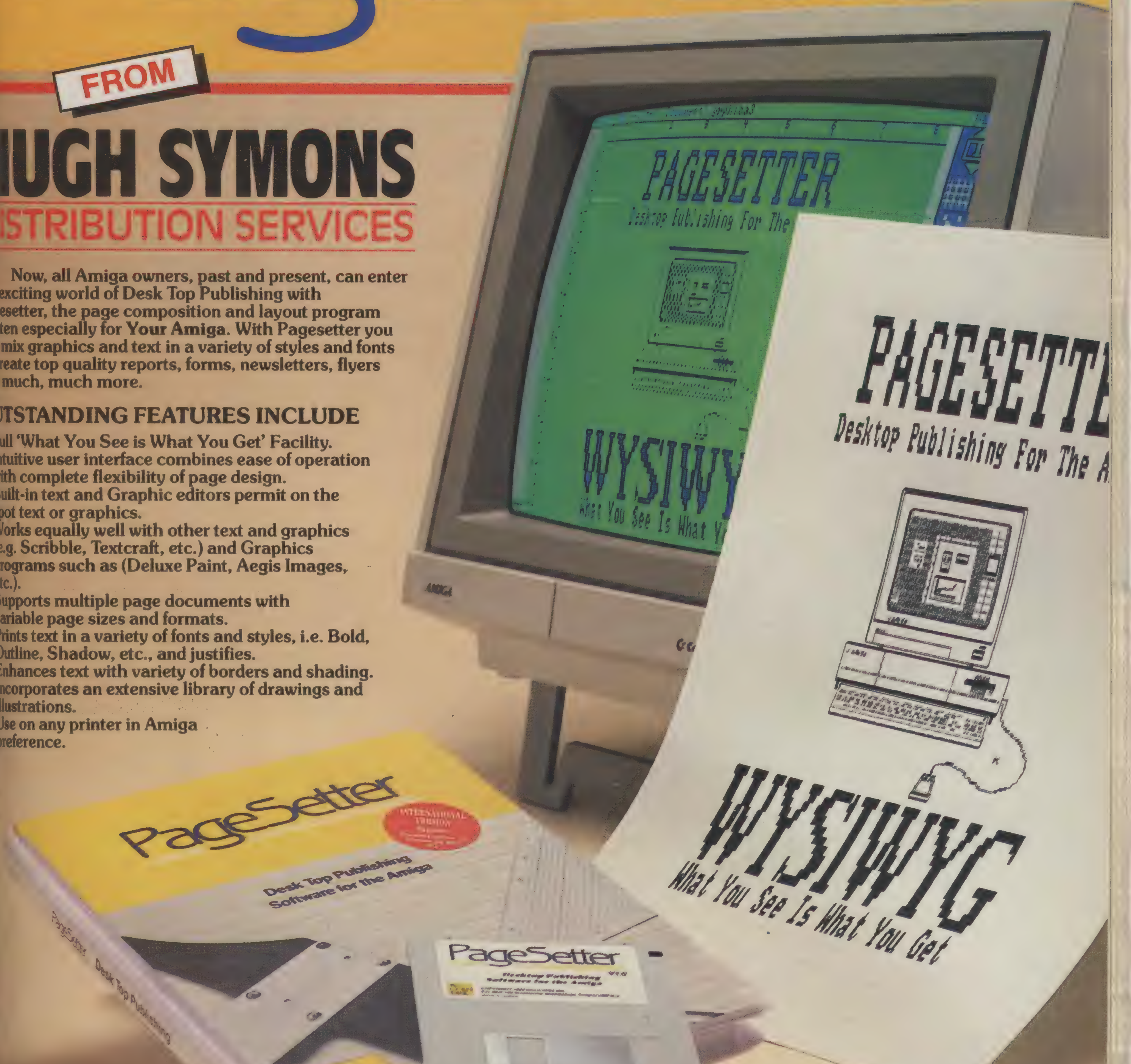
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AMIGA PRODUCTS

Taking A Look At The Reviews

With many new Amigas being bought around the world, we thought AMIGA USER should take a look back at some of the many interesting products we have reviewed and give new Amiga owners the chance to see what they missed and may want to buy. We're quoting from what appeared in those earlier issues of the magazine, since then prices may have changed.

AEGIS ANIMATOR

August '86 saw the release of an essential buy for all those who have marvelled at the amazing Amiga graphics demos and wished they could create their own. The Aegis Animator granted that wish . . .

"The Aegis Animator allows the user to define objects in 32 colours from the master palette of 4096 and then change the object's size, shape or colour. The object can be dragged, rotated or a path plotted for it anywhere on the screen. The animator operates by using the concept of 'tweening'. This means only a few frames must be drawn, and the computer works out the missing frames in between (hence the term 'tweening') . . .

" Animator is the type of software that cries out for the user to start doing something. With Animator in the hands of a relative novice, presentation graphics can take on a new dimension."

SIDECAR

If after buying your Amiga, the mention of splashing out on an IBM PC made your wallet run for cover, go and fetch it from behind the sofa and read it this article on Commodore's Sidecar . . .

"What is a Sidecar? It is possibly the most important device that the Amiga could have to turn it into a true business machine. Sidecar is the hardware devices that allows the Amiga to complete emulation of the IBM PC. The device itself is a hardware add-on which is attached to the expansion port of the side of the Amiga, leaving existing ports at the rear of the Amiga unobscured. It is not large taking up about 25cm sq. with a 5.25 inch drive at the front. The Amiga and Sidecar combine to form the leader in low cost, innovative business computers."

MINDWALKER

The games scene on the Amiga is just beginning to pick up. A year ago, games such as the Cinemaware series, or those from Psygnosis were rare, but one stood out like a sore thumb. This is what our reviewer had to say about it . . .

"When I got home, I promptly sat down and booted up Mindwalker, and played it through to about 5 am, when I eventually, I say with not a little pride, finished it. Not many games can hold my attention for so long, and neither do they have the addictive power that Mindwalker possesses. The name very aptly describes the game. Stuck in a mental hospital, you are trying to regain your sanity through your dreams; walking in the realms of your mind in its deluded insanity; trying to link up paths of coherent thought; a situation not unlike working on a magazine!

"This truly is one wierd game. It is incredibly hard to stop playing, because although initially it seems simple, it is in fact highly complex and requies a lot of strategy. It is really state-of-the-art in computer games."

AEGIS IMAGES

What better way to take advantage of the Amiga's excellent graphics capabilities than with an art package. One that stands up well a year after its launch is Aegis Images. This is how it was received in August of '86 . . .

"Aegis Images is a creative paint/draw package which starts to reveal the true graphics strength of the Amiga. I have spent a great deal of time exploring and using Images and my efforts have been both creatively rewarding as well as pleasurable in the extreme.

"Images has a wealth of helpful features, apart from the usual ones you would expect to find. To start with there is a selection of 16 brushes to choose from which can be altered by the user. Additional features such as areas of the screen being defined as brushes, polygons, shading, smearing, colour cycling, magnify and more. Aegis Images is a piece of software that is not only functional and fast but provides an excellent vehicle for user creativity."

TEXTCRAFT AND SCRIBBLE

Two word processors came on the market in August. Textcraft and Scribble were put through their paces by Bill Donald. How did they shape up? Read on . . .

"Textcraft, a product from the US is marketed in the K by Commodore. The version reviewed, 1.0, was supplied on a non-protected disk along with an extensive manual. Textcraft makes extensive use Intuition, the graphic overlay system of the Amiga operating centre. When using the cut and paste functions, the pointer sensibly changes to scissors or a paint brush accordingly.

AMIGA PRODUCTS

Trivial you may think, but it comes in handy for beginners. Functions available are adequate as opposed comprehensive, but has points such as fast re-formatting of text, a number of fonts, and fast cut and paste in its favour.

"Scribble comes with a good manual, more concerned with this particular program than word processing in general. Back-ups are no problem as it comes on a non-protected disk. A full range of formats are available for headers, footers, offsets, soft-spaces, etc., all paraphernalia of word processing. I also liked the facility which gave the option to save documents to disk in ASCII format. This is of particular value in text portability across different applications such as other word processors and other such systems.

"Summarising both products, I would say that neither has reached perfection, but both would be adequate for most users. Which one to choose, is up to personal taste."

DELUXE VIDEO

If you've ever wanted to direct your own video, be it a pop video, or just an animation, Deluxe Video could come in very handy. Hugh Riley directed his own animation as he took a look at Deluxe Video . . .

"This is the big one from Electronic Arts — the package that puts together the full potential of Deluxe Paint, Print and Music. It doesn't generate sound or complex images itself, but will accept any IFF compatible sound and graphics files and combine them as a video. Virtually everything in the program is WIMP driven with extensive use of windowing to request information or to move objects about. Deluxe Video is full of effects that can be used in combination with each other, and is extremely easy to use once you have ploughed through the manual.

"I don't think any of the moving graphics utilities are adequate for business use in themselves yet, but it's certainly fun to create with."

INSTANT MUSIC

How can you take advantage of your Amiga's excellent sound capabilities if you've no musical talent? Electronic Arts' Instant Music is designed with just this situation in mind . . . It's now being re-released in Europe. Now price £24.95.

"Instant Music provides the purchaser with a musical environment in which to experiment. I suppose the keyword to this software is *improvisation* since it allows the user limited compositional facilities together with direct real-time interaction with the sound using an input device, in this instance, the mouse. Instant Music uses conventional music techniques such as harmonic voicing and diatonic pitching. The former will ensure that whatever the user enters will play back pitched at the correct note within the context of the current melody. Instant Music lives up to its name. It is not designed as a deeply serious tool for musical development. Nevertheless, at £29.95, Instant Music is worth purchasing to give users some *feel* for the Amiga sound, a very big field indeed.

MARBLE MADNESS

Being used to the usual standard of coin-op conversions on 8-bit machines, when Marble Madness came along on the Amiga, we found it to be almost identical to the original. In fact it took a skilled eye to distinguish it from the original . . .

"When Marble Madness arrived in the arcades, its graphics, sound, and originality drew players towards it like a magnet. Could this amazing game be accurately reproduced on the Amiga? The answer is definitely yes! The game involves you guiding a rolling marble over six courses of ramps, voids, killer balls, a wave machine, acid pools, green gulpoids, and most importantly, gravity and inertia. The mouse is a well suited control method, as your marble can roll in any direction, with its speed matching that of the mouse. This is the most accurate coin-op conversion I've ever seen. Don't miss it!"

MEAN 18

There's no shortage of golf simulations now, due to the recent boom in golf computer games. One such game, Mean 18, was received with great enthusiasm in February . . .

"Mean 18 . . . the very sound of the name expresses it. This is a real mean game, and in my view, the best sports simulation on the Amiga or any other 16 bit machine. As is usual in these golf sims, you can play up to four players. You also have four courses, St Andrews, Augusta, Pebble Beach and a fictitious course called Bush Hill. It has a tremendous variety of options that make it virtually inexhaustible in the possibilities you could have to take an untried challenge each time. Amongst others, you can alter the courses, either slightly modifying it, perhaps tweaking the difficulty, or totally re-arranging it.

SILENT SERVICE

This submarine simulation appeared a while ago on the '64 and was well received. The Amiga version was nothing to be sniffed at . . .

"The game starts with you ranked as Ensign — on the easiest level. You can, if you have genius, the luck of the devil, the mind of Einstein and about a million years, progress to the ninth level of Captain, and even above. Silent Service lets you incorporate all sorts of factors to complicate your life and challenge your skill.

"The graphics are not very different from the '64 but if you do not have the '64 version then you are going to be delighted with the opportunity to use the mouse and to become fascinated for hours on end by the Amiga screens that soon assume heightened reality as Silent Service becomes a part of your life."

TRUE BASIC

Need a decent BASIC? True BASIC could be just what you're looking for . . .

"The environment provided by True BASIC employs Intuition in the manner as Amiga BASIC. However, the facilities offered to both the user and the programmer are vastly superior — for example the user has merely to click the mouse within the program window to stop the execution, whereas in Amiga BASIC halting a program means a search for the menu bar, assuming the mouse pointer is visible. The menu structure for True BASIC covers: Project, Edit, Search, Format, Run and Windows.

"Compared to Amiga BASIC, the programmer will find this system much better. The *search/replace* option is case-sensitive, automatic indenting an capitalisation of key words, an undo function, selective breakpoints, line numbering and deletion are just a few of the options that make programming in True BASIC a joyful experience. If you are looking for a fast, powerful, portable BASIC that provides a structured environment then True BASIC is clearly the one to buy."

DIGIVIEW

No personal computer has been more suited to digitising pictures than the Amiga. With its high resolution, and enormous palette of colours. Someone had to make a digitiser to do the computer justice . . .

"Digiview is an unobtrusive white box that plugs into the parallel port of the Amiga. Plug a video camera into this and you're ready to go. The system works on a high-res mode of 16 grey level of 640 x 400. It has image processing built in and automatically picks the most suitable but can be manually overridden if you wish. Lo-res colour is either HAM (Hol and Modify) which allows 4096 colours on screen simultaneously or picks 32 colours which it chooses out of 2.2 million colours. It works out the best colours and picture and them smooths out the graininess. We were very impressed by what we saw, and found it lived up to all claims made for it."

ONE-ON-ONE

Electronic Arts were one of the few companies to back the Amiga in its younger days, and One-On-One was one of the first sports simulations. This is how the game fared . . .

"One-On-One is a basketball simulation, featuring two of America's most talented basketball players, Julius Irving and Larry Bird represented on screen. You can play either of these, and the other player can be controlled by the Amiga or a friend. Larry and Julius have different strengths and weaknesses, and bearing their styles in mind during play can work to your advantage, although remembering to play in the appropriate style can be tricky.

AMIGA PRODUCTS

"The graphics aren't stunning, but the sound effects are. You can even hear a hotdog seller in the background! The game has a nice feel to it which makes it enjoyable to play."

PAL GENLOCK 8600

Genlock 8600 is a device that can display the Amiga's graphics over a video picture, not unlike the 'mix' feature on teletext TVs. Bill Donald gave it a test run in February of this year . . .

"The package consists of the Genlock unit, three connecting cables, a disk containing several items of software, and a 20 page manual. Connection of the unit is simply a matter of connecting the three cables — one replaces the existing monitor lead which now runs between the Genlock unit and the monitor, another fits to the A1000 parallel port and runs between the Genlock unit an the A1000 video output port.

"There was only one area where I was unhappy — the loss of the parallel port, although this could be overcome by the use of a piggyback IDC connector on the cable from the Genlock. In short, the 8600 PAL Genlock has produced the goods in this area irrespective of program skills."

EASYL

Mouse input is fine for art programs, but wouldn't it be nice if you could simply draw the picture as you wold normally, and have it appear on the screen. Easyl lets you do this for a mere £399.95 . . .

"For the experienced computer artist or the novice, Easyl is a time saving and clever device, and very easy to use. The Easyl drawing pad is just over A4 in size, it has a durable surface (pad) over an underlying grid which is attached to a lightweight wooden base. A small light protrudes from the interface. This is very important when using the drawing pad, because it tells you when enough pressure is being applied, in order for your drawing to be translated to the screen.

"Easyl's software is probably not first rate when compared to other distinguished graphics packages. However, the drawing pad is great and I see it as being the main feature. When used with other graphics packages it is even better."

SINBAD AND THE THRONE OF THE FALCON

Mindscape sail the seven seas in one of their earlier Cinemaware games. Fancy joining them? . . .

"Sinbad might indeed have been written on a less complex or advanced computer. Much of the 'action' takes place with relatively still graphics, and the techniques used — answering questions from a multiple choice are as old as adventure games on any computer. However, it's clear that the creators of Sinbad have set out to build something else. They have, I believe, succeeded in writing the first graphic adventure for the Amiga. As an Amiga product, Sinbad is not going to dazzle like a super-nova, but it does offer some tremendous fun."

THE FAERY TALE ADVENTURE

This enormous arcade adventure turned up in July, and was responsible for causing work in the office to grind to a halt as fights broke out over who would play this amazing game . . .

"Taking the part of the three brothers, it's up to you, the player, to recover the talisman and restore peace to the land once more. Viewed from above and at a slight angle, you begin as Julian, the eldest brother in the village of Tambry. The bottom third of the screen shows a scroll narrating the events as they happen.

"Faery Tale is an enormous adventure which will take a long time to complete and makes excellent use of the Amiga's graphics, sound and memory. We do not believe that there will be anyone who plays computer games who could possibly not love Faery Tale. It's a great game."

BARBARIAN

The graphics talents of Psygnosis were once again in evidence in their hack 'em up Barbarian. Great graphics, what about the game? . . .

"With their latest game, Barbarian, Psygnosis have produced some of the best graphics ever seen on a computer game. Take the part of Hegor, the monster mangling Barbarian! Venture into the underground world of Durgan, and Destroy the Necron Lair to obtain the kingdom's crown! On your quest you will encounter many gruesome death-dealing creatures ranging from nasty to deadly.

"There is no doubt that a lot has gone into the design of Barbarian in every way, but Psygnosis still have some tricks to learn on the programming side. Not wanting to take too much away from the game, it must be said that Barbarian is a highly enjoyable game, with loads of original touches. Check it out, you will find it has to be one of the best Amiga games you can buy."

BALANCE OF POWER

If you were in Ronald Reagan's shoes, how would you handle world politics? Find out with Balance of Power . . .

"Balance of Power only asks for something simple like putting you in the hottest of life and death decision making seats with an armageddon-style crisis to stave off. There is no shoot 'em up action, your main task is to make the choices and to use the proper influences to keep the world safe for your kind of political system — and we all know what that means don't we? As someone once said "Democracy? That means everyone votes for what I want!"

"Balance of Power could be just the job for helping you look at life a touch more coolly, and maybe even more wisely."

BUREACRACY

Have you ever suffered at the hands of bureaucrats? Anthony Mael plays this spoof adventure game, written by Douglas Adams, author of Hitch Hikers Guide to the Galaxy . . .

"In Bureaucracy, you find yourself in a horrifyingly real mess. You have just landed a great new job and moved into a spiffy new house in a nice little town. You're even being sent to Paris this very afternoon for a combination of seminar and vacation. What could possibly go wrong? The answer is of course, everything. Infocom claims it's like waking up inside a story, taking you into the centre of a world jampacked with surprising twists and unique characters.

"Bureaucracy is stunningly well put together. It is highly enjoyable and will give you uncounted hours of delight."

AEGIS IMPACT

Aegis Animator, Aegis Images, what next? Aegis Impact, that's what . . .

"Aegis Impact is a presentation graphics package that combines elements of previous Aegis products, namely Aegis Images and Aegis Animator to provide highly effective graphics. The basic premise of Impact is that the numeric data is entered and the data displayed in either bar charts, pie charts, line and area charts, or star charts. Both pie and bar charts can be displayed as either two dimensional or three dimensional images. The graphs can be customised by user defined icons and vertical or horizontal text characters.

"Ask to see a demonstration of Impact and see why it is the leading software in business presentation graphics."

TRIVIA TROVE

Everyone likes a bit of trivia, don't they? Trivia Trove quizzes you on your general knowledge of the unimportant . . .

"This is definitely the one for all of us trivia fans, a thoroughly addictive game. We are given the choice of Trivia Trove or Trivia Trove+ which is the same game, but with the answers supplied, should you get them wrong. Both versions are written in Amiga BASIC.

"One really nice feature of this game is that it does have a section called Trivial Filer which allows you to create your own questions for use within the game. This can be great fun on a Saturday night with a few friends and a liberal supply of amber nectar. On a more serious note it can also be very useful as an educational aid.”

Compiled by Tony Horgan

ZING! KEYS

Len Keighthley takes a look at the upgraded version of the popular Zing! package.

ZING! Keys is the latest product from Meridian Software Inc. for the Amiga. Like its predecessor, ZING, it helps the Amiga user to communicate with the machine. The function of this utility is to save time when commands, in any of the available forms ie. key depression or mouse movement, are to be input. This will be particularly helpful for touch typists or those who do not like having to remove the hands from the keyboard to carry out mouse functions.

The method used is to create what Meridian call Macro or Hot Keys. A Macro Key is defined as one that will expand to one or more automatic key depressions. The inclusion of mouse or window operations are handled by special macros called 'Intuition Macros'. A Hot Key is a key that will start up another task. In both cases the user is saved the necessity of inputting long sets of key depressions, if not commands. Both types of key are selected by use of a qualifier key such as the Amiga or Alt keys.

The ZING! Keys disk is a Version 1.2 Workbench disk and the program itself is loaded as part of the startup procedure. To accommodate the ZING Keys software, some of the standard Amiga features have been removed, such as the Clock and Calculator. As part of the load a default arrangement of Macro and Hot keys is created, but these can be overwritten or moved to other keys if required.

Macro Keys

There are two types of macro, System and User. System Macros enable the use of the Special Key Functions to be included in macros, while using ZING! Keys itself. This then avoids using the Editor or Help Menu to use these functions in User Macros. User Macros can be made up of any number of System Macros, Hot Keys, Input Macros and other User Macros. User Macros can be nested up to 16 levels.

A typical User Macro will consist of commands that, when the User Macro Key is pressed, will be input to the machine as though the user had typed them or used the mouse. Mouse movement is handled by storing the position of the mouse printer at which it should be positioned as part of the function actioned by the Macro Key.

Hot Keys

These are simple to use and set up. A Hot Key when pressed will start up an application program as a new task. As part of the definition of a Hot Key, the user may supply details of what parameters need to be passed to the application program, before starting.

ZING! Keys also provides a History feature which allows the recall, edit and output of old commands. Thus providing the user with a sophisticated repeat command facility.

ZING! Keys is a powerful package which includes a Key Editor and Help Menu which makes it simple to create or amend Macro or Hot Keys. As part of the package a 48 page manual is supplied. This includes a Tutorial which is advisable to use. ZING! Keys is certainly not for the amateur or games player but once used and mastered eases the use of all aspects of the Amiga command language.

L.K.

★ Program Submission Procedure ★

DO NOT submit any programme or routine that you do not either own or have proper authority to do so.

ALWAYS include your name, address and the date on all material and any enclosures.
Do not forget to to make it clear exactly which computer/s your programme or article is applicable to.

Include ROM or DOS versions wherever they are pertinent.

Number all pages.

If you have to submit work which is hand-written then you must make sure it is printed clearly.

Never use staples. Use paperclips if necessary.
If you are saving your programme to tape then save it AT LEAST twice on each side.
When you save a programme on disk save it twice and call the second file "BACKUP".

Remember to label all tapes and disks with your name and the title of the programme. Label tape or disk with your name and the name or title of the programme.

Always ensure that disks are well packaged. They should ideally be sent in a commercial disk mailer or at least packed between two pieces of hardboard or rigid plastic.

Please allow at least 8 weeks for acknowledgement as all programmes have to be thoroughly tested and made into a suitable format.

Enclose a self-addressed stamped envelope or package if you would like your programme to be returned.

★ Programming tips ★
If you can, use CHR$(x) type commands instead of those hard to read graphic symbols.
If necessary renumber your programme on completion as many readers use auto number utilities to ease typing in.

Try to keep instructions within the programme itself as a sensible level. You can expand on them within the accompanying text if necessary.

TEST your programmes before submitting them or even better get a friend to test them for you.

If a programme contains machine code data please use decimal and not hex as there are fewer digits to be confused. Try and keep the same number of data statements in each line. Please add some form of error checking if your programme contains any more than five lines of data.

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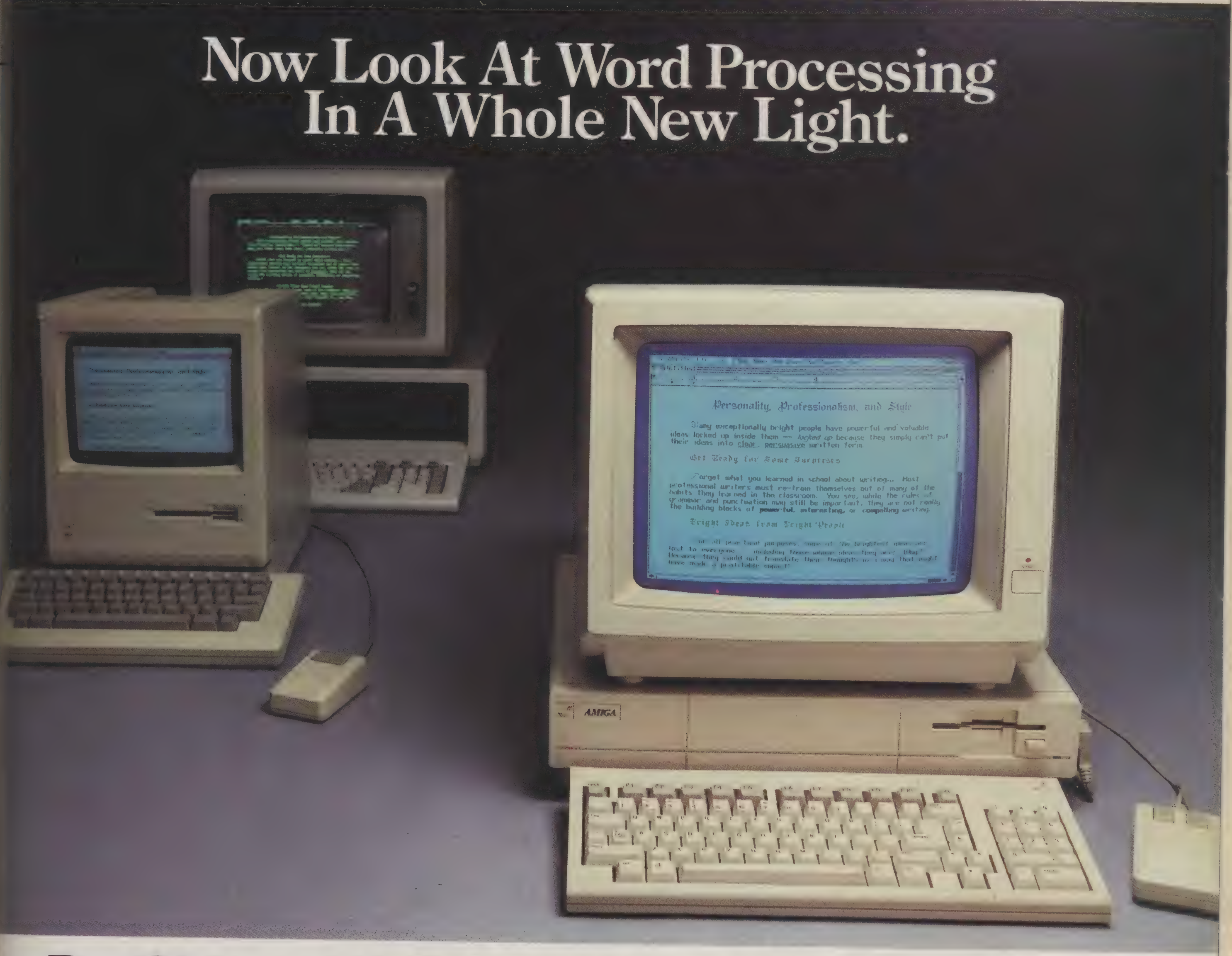
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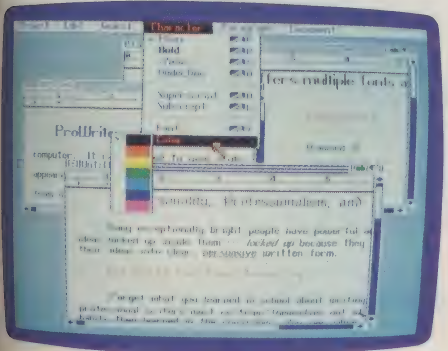
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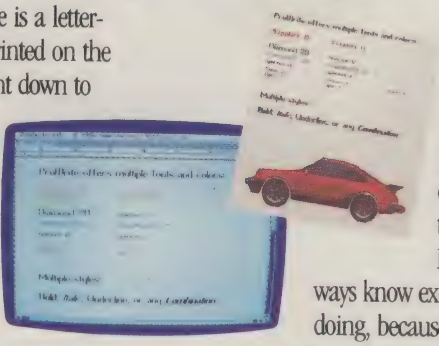
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64 MEGABIT BUBBLE

Anthony Mael takes a look at a French company's achievement in blowing an interesting electronic bubble.

64K? What about 64 *megabits?* And what about a memory that does not disappear when you switch off the computer? That would mean you could have a tiny computer of huge power that you could carry around in your pocket. The key to this is 'bubble memory' and Sagem — a French company — are developing a memory storage device based on this technology that will contain at least four times the amount that a conventional silicon chip could hold in the same size. 64 megabits is equivalent to about 1.3 million words and will fit, using bubble memory, on to a piece of circuitry about 1 inch square.

Bubble memories store information in the form of tiny cylinders on a magnetic base. The presence or absence of a cylinder, or bubble, represents the 1 or 0 of the digital code used in all computer memories. A bubble can be created and erased electrically, but because it is magnetic, it is unaffected when the power is switched off.

Bubble memories have two main advantages over conventional silicon memories: they retain the information stored in them even when the power is switched off and they are tougher and more resistant to rough treatment. They can stand up to vibrations and wide temperature variations so they can be used in difficult environments such as in robots in factories. Hitachi, one of the four world manufacturers of bubble memories ran tests that showed that in 1 billion hours of operation there will be an average of only 15 bubble memory failures.

Sagem's new technique, ion implantation, has been used by the semiconductor industry for some time in the production of standard silicon integrated circuits. Its application to bubble memory production is more recent, and Sagem is already selling a one megabit memory that is made with the process.

Bubble memories have proved harder to make than was anticipated, and their high price relative to semiconductor memories has meant their potential market has been smaller than predicted.

"The cost-per-bit will be lower, and for the market to grow, bubble memories must have a major packing density advantage over other memories, which is why the 16 and 64 megabit devices are so important," says Guy Spriet, of Sagem.

In the ion implantation techniques developed by Sagem, as in silicon chip manufacture, the base on which the bubble memory is created is bombarded by a stream of ions (charged atoms). This changes the pattern of the circuit elements and the orientation of the magnetic field.

The result is a four-fold increase in the density with which bubbles can be packed on to the chip, compared with conventional production. This turns a one megabit memory into a four megabit device, at little extra cost.

The cost per bit of bubble memories is usually higher than that of silicon memories — about 5p per 1000 bits of bubble memory, compared with about 0.5p for the same amount in silicon. But the high density bubble memory will reduce costs per bit because although the number of bits will increase the size of the chip itself will not. Sagem is now talking to Hitachi about jointly developing a 16 megabit device, followed by a 64 megabit version.

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1. **Who is Commodore UK's MD?**
2. **How many keys are pictured or mentioned in titles of articles in this CCI?**
3. **Who programmed Mega Apocalypse?**
4. **Who is CCI's Office Skatefreak?**
5. **Who is Telecomsoft's MD and Hostest with the Mostest?**
6. **How much does an Amiga 500 cover cost?**
7. **Name one Timeworks products for the 64 and its price.**
8. **Who is CCI's Technical Editor this month?**
9. **What is Micronet's Commodore section called?**
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11. **What does SDI mean?**
12. **How many books are there to choose from in CCI's Reader's Book Offer?**
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14. **What is the cost of subscribing to CCI in the UK?**
15. **Where was the AmiExpo held?**
16. **How many joysticks are reviewed in Take Control?**
17. **How many Mega or Awesome rated games are reviewed in this CCI?**
18. **How many Magenta Pages are there and how many advertisements are there in them?**
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PSION	MATCH POINT 64	
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MCMLN	MAGIC	
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ACTVSN	BEAM RIDER (DISC)	
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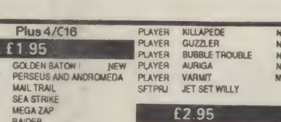

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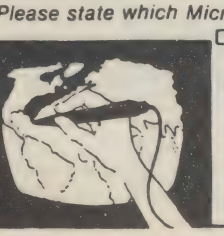

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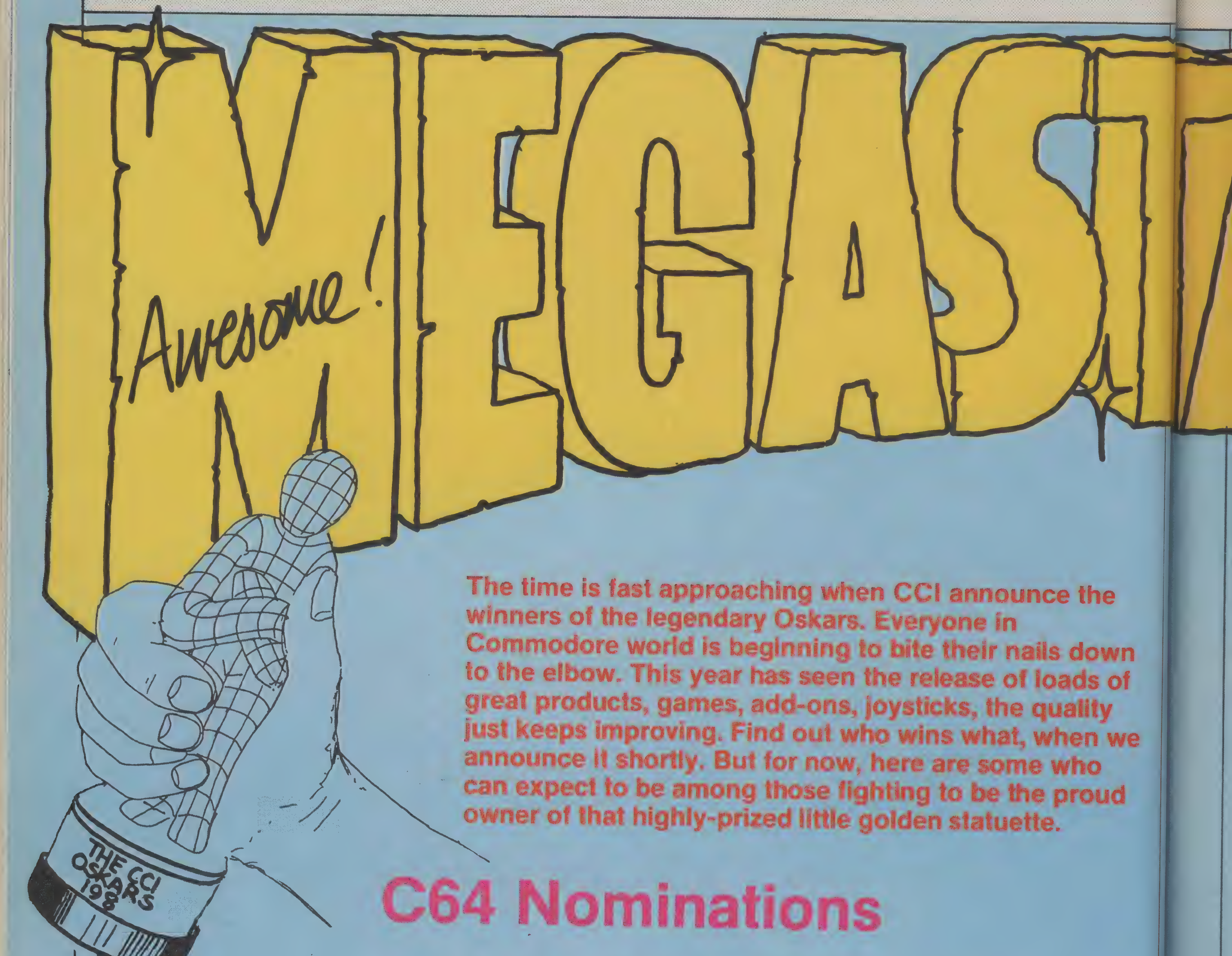

The time is fast approaching when CCI announce the winners of the legendary Oskars. Everyone in Commodore world is beginning to bite their nails down to the elbow. This year has seen the release of loads of great products, games, add-ons, joysticks, the quality just keeps improving. Find out who wins what, when we announce it shortly. But for now, here are some who can expect to be among those fighting to be the proud owner of that highly-prized little golden statuette.

C64 Nominations

Best arcade game

A number of offcial arcade conversions have appeared this year as well as the usual arcade-style gams. The pick of the bunch include great conversions of Arkanoid and Road Runner, with Sensible Software's excellent and original Wizball all capable of keeping any gamer riveted to his joystick. Mega Apocalypse has come in as a late runner.

Adventure

There's been a lot to puzzle over in '87. A wide variety of real gems have been released this year, Infocom's superb Stationfall, Magnetic Scrolls' Guild of Thieves, US Gold's Killed Until Dead, and Infogrammes' Murder on the Atlantic to name but a few.

Arcade/Adventure

Of course, the combination of excellent graphics, music, gameplay and puzzles make The Last Ninja a leading contender, with the three dimensional Head Over Heels and Auf Weidersehen Monty combining brain and joystick power to good effect.

Sports Game

Epyx have done the necessary to earn two nominations so far, those being California Games and Street Sports Baseball, with Street Sports Basketball in the pipeline. The ultimate golf simulation, World Class Leaderboard is surely in with a more than fair chance.

Beat 'em Up

This year saw relatively few beat 'em ups. Palace's head-chopping blood spurting Barbarian stands out, closely followed by the all-in street brawl Renegade. To add to these is International Karate threatening to land a flying kick at the last moment.

Simulation

The sequel to Ace, winner of last years simulation category, must be in with a good chance, challenged by Microrpose' Gunship, and the clever Twin Tornado.

Role Playing Game

Two stormers from Electronic Arts, Legacy of the Ancients and Bards Tale II appeared last month to satisfy role players and look set to be great hits.

TARS OF '87

Compilation
Both of Elite's 6 Paks offer excellent value for money, Epyx also bundling four of their greatest in Epyx Epics. Gremlin are releasing a great stocking filler with ten of their best, working out at a pound a game! Ocean have their 22 sports gathering and watch out for Solid Gold from you know who!

Original
Originality is hard to come by these days, the futuristic Shockway Rider being one of the few, along with the entertaining Accolade's Comics, and Stifflip and Co.

Best Graphics
California Games and The Last Ninja come strong in this area, with Road Runner and Hysteria's sprites worthy of a nomination, while Accolade's colourful and amusing Comics are a pleasure to look at.

Best Music
The highly entertaining interactive music that fronted Delta, which itself contained some excellent pieces is in the running with The Last Ninja for its 12 atmospheric pieces, and Martin Galway's Wizball and strange Game Over music.

Cheapo of the Year
An abundance of cheapo's have surfaced in the last year, the best being such bargains as Kikstart 2, Microrhythm + and Lazer Force, as well as many other quality re-releases.

Best Sound Effects
The budget hit I, Ball, had some excellent speech, if not actual FX, and Arkanoid's FX were better than its arcade cousin. Mega Apocalypse' digitised speech and FX were some of the best heard for a long while, and rank along those of Thalamus' Delta.

Software House of the Year
Epyx' consistently excellent games rank them as the company to follow. This year, System 3's Last Ninja has given their reputation a boost. Many other great games have been released, but few companies are as consistent as these. With US Gold likely to be considered for its big guns yet to come.

Control Device of the Year
Some very attractive quality joysticks have appeared this year, Dynamic's transparent Competition Pro with extra bits, Robtek's novel Terminator shaped like a hand-grenade, and a very promising new stick from Leisure Soft called the Cruiser.

Programmer (or team) of the Year
Once again, Epyx and System 3 crop up. Both said teams have produced world beating games of amazing quality. A fairly new name, Stavros Fasoulas has made a name for himself and Simon Nicol for Martech's Mega Apocalypse.

Shoot 'em Up of the Year
This year has seen a boom in shoot 'em ups (no joke intended). Thalamus' almost arcade quality Delta, Martech's Mega Apocalypse and Hewson's Zynaps are all deserved of a mention.

Most Offensive Game of the Year
A number of violent games have stirred up a moral hornets nest. The gorey Nemesis the Warlock, the mushy massacre of Deathwish III, and the decapitation and the buxom page 3 girl of Barbarian, are all enough to make you relive your last meal.

Worst Game
Great cons of our time have included such tragedies as the mid-priced Killer Ring and Dead Ringer, and the pathetic Tag-Team Wrestling are contenders for Turkey of the Year.

Best Game of 1987
Awesomely rated Last Ninja, California Games, Street Sports Baseball, Mega Apocalypse, Hysteria must be in with a fighting chance of the ultimate accolade, Best Game of 1987. But there are releases yet to hit us.

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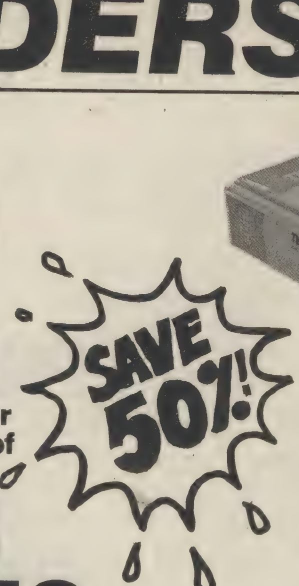

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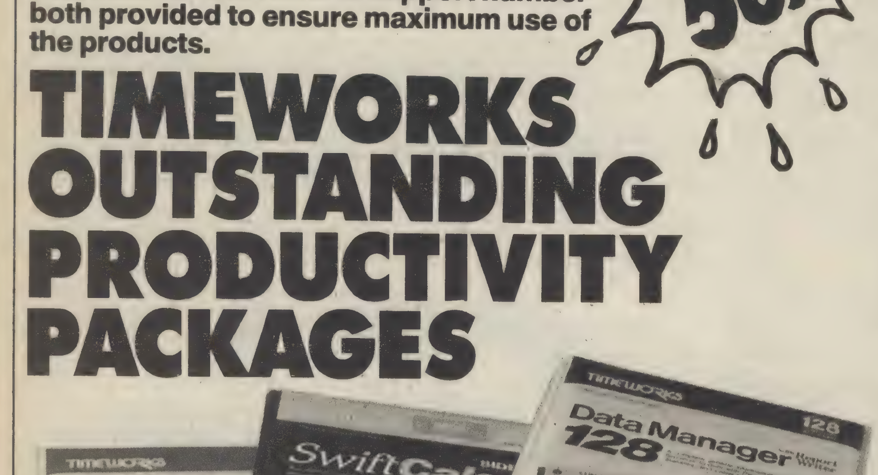

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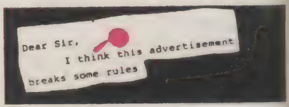

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CRIB 128

G. Cattley and A. Eskelson

This is an excellent game. It plays very well and makes excellent use of the 128.

This program is best suited for use with disks but it will work with tape. If you are a tape user then you should set the flag in line 230 to zero, so the line should read DK=0. This will make the program skip the test for the disk file of the machine code and force the data segments to be read every time the program is run. This will take about 70 secs. Note that the program reads the data in FAST mode so the 40 col screen will blank.

The program is long and has a large amount of data segments in it that set up the machine code. These data statements are protected with a CRC error checking system so the machine code parts of the program will be correct when entered. Once the program has been typed in and run, it will look for a disk file to BLOAD into the memory, this is the machine code that the program requires. If the file is not found the program will start to read the data statements and will then BSAVE the machine code to disk. The reason for this is that reading and poking the data statements is quite a slow process compared with BLOAD.

The graphics and the screen are set up and the crib board is drawn and the game will proceed normally, with the exception that the computer will do all the dealing and scoring for you. A list of the sections of the programs along with their functions is given here, that may prove useful in debugging the program of typing errors.

Just to add some interest, if you are using disks the program keeps a file of the number of games won by the human and computer and is displayed at the end of each game. The playing time of each game is about 20 mins. There is some sound included in the program, but it is very simple and is only used when you try to 'cheat'. It was decided that the computer plays a mean enough game without you having a lot of distracting sound effects going on. You will need all the skill that you have just to stay even!.

CRIBBAGE 128

The game of Cribbage is very old and is a game for two players. This program allows you to play against the computer, there are several versions of the game of Crib that are played, five card, six card and seven card. This program is the six card version. The objective of the game is to reach the score of 121 before the computer, and that is not an easy task!. There are regional variations in the game, mainly in the naming of the plays ie. the terms Crib and Box mean the same thing, they are the discarded cards that will score to the dealer at the end of the play. In this region the term Box is used.

The program will perform the task of scoring for both the computer and yourself so even if you do not have a good head for figures, you can still enjoy the game. However it is useful to the understanding of the game to know the rules. So a brief description of them is set out here. Remember the game may not be exactly the same as played in your region!.

The deck is cut for deal, the lowest card deals. Each player is dealt six cards, each player must discard two cards into the 'box' (sometimes known as the crib). The box is a second hand that scores for the dealer so the cards that are discarded must be carefully selected for the maximum benefit depending if it is your box or not.

Once the box has been set, the cards are cut again for the 'start' card. This is used in scoring. If the start card is a Knave then the dealer pegs two, known as TWO FOR HIS HEELS.

Play starts with the non dealer laying first followed by the dealer. The total pip value of all cards must not exceed thirty one. Aces count as one and all court cards count as ten. Pairs score two, three of the same score six and four of the same scores twelve.

If three cards laid down can be formed into a run then the player laying the third card scores three, for a four card run the score is four etc. The run can be in any order ie two, four, three. If the pip total of two or more cards add up to fifteen, the player of the last card scores two. Making a total of thirty one also scores two points. If a player is unable to lay a card without exceeding thirty one then the play passes to the other player. If neither player can lay a card without exceeding 31, the player who laid the last card will score one point. This is known as ONE FOR LAST.

Now that the two hands have been laid, the 'show' is performed, this involves scoring from the hand BUT including the start card so runs, fifteens, pairs etc all count. Flushes of four or more cards also count point for length. The non dealer scores the show first. The dealer scores his show in the same way and then he takes the box and scores that. The difference being that only five card flushes are allowed. If a hand or box contains a knave of the same suit as the start then one is scored this is known as ONE FOR HIS NOB.

100 — 280	**setting up routines**
300 — 310	**load in machine code if on disk**
320 — 490	**CRC protected machine code reader**
500 — 680	**set up graphics**
690 — 930	**draw board**
940 — 1000	**set up peg sprites**
1010 — 1130	**set up cards and move pegs**
1140 — 1460	**cut for and sort out who deals**
1470 — 1680	**shuffle and deal**
1690 — 1930	**human card choice**
1940 — 2130	**sort humans cards**
2140 — 2180	**sort box**
2190 — 2230	**sort computers cards**
2240 — 2390	**cut for start card**
2400 — 2780	**play hands **** main part of game ******
2790 — 3040	**update score file**
3050 — 3150	**check for computer valid lay subroutine**
3160 — 3470	**computer choice of cards to lay subroutine**
3480 — 3770	**human choice of cards to lay subroutine**
3780 — 4540	**peg during layout subroutine**
4550 — 4620	**last card subroutine**

```
100 REM            CRIBBAGE 128
110 REM (C) 1987, G.CATTLEY & A.ESKELSON
120 REM
130 FOR I=1 TO 4:SPRITE I,0:NEXT
140 REM MACHINE CODE CALLS
150 Q1=DEC("0B46"):Q2=DEC("0B4C")
160 Q3=DEC("0B70"):Q4=DEC("0B8C")
170 Q5=DEC("0B00")
180 FC=DEC("0B8B"):IV=DEC("0B8A")
190 FOR I=0 TO 6
200 Z(I+1)=DEC("1300")+I*3
210 NEXT I
220 REM DISK USERS SET DK=1
230 DK=0
240 FAST:BANK 0:SCNCLR:R=RND(0)
250 REM SET BACKGROUND COLOR
260 COLOR 0,14:COLOR 4,14
270 COLOR 1,2:COLOR 2,3:COLOR 3,1
280 GRAPHIC 3,1
290 TRAP 6810
300 IF DK THEN BLOAD"CRIB CODE",B0
310 REM SET UP CRC
320 IF DK=0 OR DS=62 THEN BEGIN
330 M1=Q5:MC=M1+9
340 FOR I=0 TO 59:READ Z
350 POKE M1+I,Z:NEXT I
360 REM DATA FOR CRC
370 DATA 169,0,133,250,133,251,133,252
380 DATA 96,133,252,162,8,165,250,42
390 DATA 38,253,42,42,42,42,42,69
400 DATA 253,133,253,165,250,69,253,133
410 DATA 253,165,251,42,42,42,69,253
420 DATA 133,253,38,252,42,69,253,106
430 DATA 38,251,38,250,202,208,214,166
440 DATA 251,165,250,96
450 REM READ IN MACHINE CODE
460 GOSUB 6580:BEND
470 IF DK=1 AND DS=62 THEN BEGIN
480 BSAVE"CRIB CODE",B0,P(Z(1)) TO P(SA)
490 BEND
500 REM DIMENSION STORAGE ARRAYS
510 DIM PT(15,6),CH(15),PS(15),TP(15)
520 DT=2
530 DEF FNA(A)=INT(RND(1)*A+1)
540 DEF FNB(B)=RSPPOS(B,1)
550 FOR I=1 TO 31:CS$=CS$+" ":NEXT
560 SYS Z(1):REM SET UP TABLES
570 REM COPY SPRITE 1 INTO SPRITES 2-4
580 SPRSAV 1,2:SPRSAV 1,3:SPRSAV 1,4
590 REM GET NUMBER OF GAMES WON
600 IF DK=1 THEN BEGIN
610 DOPEN#1,"CRIB WINS"
620 IF DS=0 THEN INPUT#1,GP(1),GP(2),GP
630 DCLOSE#1:BEND
640 REM SWITCH OFF TRAP
650 TRAP
660 SLOW:WIDTH 1:MU=3
670 B$="CRIBBAGE 128":TL=0
680 XL=0:YL=0:GOSUB 6120
690 REM DRAW CRIB BOARD
700 COLOR 1,1:COLOR 2,9:COLOR 3,10
710 DRAW 1,128,176 TO 128,16
720 DRAW 1,128,16 TO 157,16 TO 157,176
730 BOX 1,142,176,143,177
740 CIRCLE 1,142,172,15,15,100,250,0,1
750 BOX 1,130,18,141,42
760 FOR I=0 TO 4
770 BOX 1,133,21+I*4,134,22+I*4
780 BOX 1,137,21+I*4,138,22+I*4
790 NEXT I:PAINT 2,132,20,1
800 SSHAPE A$,130,18,141,42
810 GSHAPE A$,144,18
820 SSHAPE A$,130,18,156,42
830 FOR I=1 TO 5
840 GSHAPE A$,130,I*26+18
850 NEXT I
860 PAINT 3,144,178,1
870 SR$="11111111"
880 BK$=LEFT$(CS$,13):REM 13 SPACES
890 COLOR 1,2:COLOR 2,11:COLOR 3,1
900 B$=" PEG ":X9=127:Y9=0:GOSUB 6160
910 B$="YOU":X9=127:Y9=8
920 MU=1:GOSUB 6160
930 B$="ME":X9=146:Y9=8:GOSUB 6160
940 REM SET SPRITES AND MOVE OFF SCREEN
950 FOR I=1 TO 4:SPRITE 1,0
960 MOVSPR I,0,0:NEXT I
970 SPRITE 1,1,2,0,0,0,1
980 SPRITE 2,1,2,0,0,0,1
990 SPRITE 3,1,4,0,0,0,1
1000 SPRITE 4,1,4,0,0,0,1
1010 REM SETUP CARDS IN MX$
1020 NU$="A23456789TJQK":B9$=CHR$(211)+CHR$(193)
1030 B9$=B9$+CHR$(218)+CHR$(216):FOR I=1 TO 4
1040 C$=MID$(B9$,I,1):FOR J=1 TO 13
1050 MX$=MX$+MID$(NU$,J,1)+C$:NEXT J,I
1060 REM MOVE SPRITES TO TOP OF BOARD
1070 MOVSPR 1,289,69:MOVSPR 2,297,69
1080 MOVSPR 3,317,69:MOVSPR 4,325,69
1090 REM SPRITES COME ON DOWN
1100 FOR I=1 TO 4:MOVSPR I,180 #1:NEXT I
1110 GOSUB 5150:XL=0:YL=3
1120 FOR I=1 TO 4:MOVSPR I,0 #0:NEXT I
1130 GOSUB 6770:IF GP<>0 THEN 1380
1140 REM CUT CARDS TO SEE WHO GOES FIRST
1150 B$="LOWEST CARD DEALS
1160 XL=0:YL=5:GOSUB 6120
1170 B$="ACES ARE LOW"
1180 YL=YL+2:GOSUB 6120
1190 B$="MY CARD":YL=11:GOSUB 6120
1200 B$="YOUR CARD":X9=X9+20:GOSUB 6160
1210 R1=FNA(52)*2-1:R2=FNA(52)*2-1
1220 IF R1=R2 THEN 1210
1230 C1$=MID$(D$,R1,2):CD$=C1$
1240 XD=1:YD=13:GOSUB 6280
1250 H1$=MID$(D$,R2,2):CD$=H1$
1260 XD=10:GOSUB 6280
1270 CP$=LEFT$(C1$,1):HP$=LEFT$(H1$,1)
1280 REM TEST FOR TWO CARDS SAME VALUE
1290 IF CP$=HP$ THEN BEGIN
1300 B$="CUT AGAIN"
1310 XL=0:YL=22:GOSUB 6120
1320 SLEEP DT:L1=13:L2=22:GOSUB 6540
1330 BEND:GOTO 1210
1340 CP=INSTR(NU$,LEFT$(CP$,1))
1350 HP=INSTR(NU$,LEFT$(HP$,1))
1360 IF CP<HP THEN GP=1:ELSE GP=2
1370 XL=0:YL=22
1380 REM RESTART HERE FOR NEW GAME
1390 IF GP=1 THEN B$="MY DEAL":GOTO 1410
1400 B$="YOUR DEAL"
1410 GOSUB 6120:SLEEP DT:GOSUB 6510
1420 GOSUB 6770
1430 REM RESET COUNTERS
1440 CP=GP:CP(1)=0:CP(2)=0:DP=0:GW=0
1450 FOR I=1 TO 4:SP(I)=1:D(I)=0:NEXT I
1460 CHAR 1,30,24,"           ":REM 11 SPACES
1470 REM RESTART HERE FOR REST OF GAME
1480 GOSUB 6510:REM CLEAR LINES
1490 N$="MY":IF CP=2 THEN N$="YOUR"
1500 REM DEAL SIX CARDS EACH
1510 CP$="":HP$=""
1520 GOSUB 5160:REM SHUFFLE CARDS
1530 REM DEAL CARDS; SIX EACH
1540 FOR I=1 TO 11 STEP 2
1550 R1=2*I-1:CP$=CP$+MID$(D$,R1,2)
1560 R2=R1+2:HP$=HP$+MID$(D$,R2,2)
1570 NEXT I:D$=MID$(D$,25,LEN(D$))
1580 REM SORT CARDS INTO ORDER
1590 S1$=CP$:GOSUB 5290:CP$=S1$
1600 S1$=HP$:GOSUB 5290:HP$=S1$
1610 L1=2:L2=2:GOSUB 6540:TD=0
1620 REM DISPLAY CARDS
1630 FOR I=1 TO 6:R2=I*2-1:A=I
1640 YC$(I)=MID$(HP$,R2,2)
1650 GOSUB 6210:GOSUB 6280
1660 B$=RIGHT$(STR$(A),1):GOSUB 6120
1670 MC$(I)=MID$(CP$,R2,2)
1680 NEXT I
1690 REM GET HUMAN TO CHOOSE CARDS
```

```
1700 GET A$:IF A$<>"" THEN 1700
1710 B$="PUT TWO CARDS"
1720 XL=0:YL=22:GOSUB 6120
1730 B$="INTO "+N$+" BOX"
1740 YL=YL+1:GOSUB 6120
1750 GETKEY A$:A=VAL(A$)
1760 IF A<1 OR A>6 THEN 1750
1770 GOSUB6210:TD=1:GOSUB 6290
1780 BX$(3)=YC$(A):F1=A
1790 GETKEY A$:A=VAL(A$)
1800 IF A<1 OR A>6 OR A=F1 THEN 1790
1810 GOSUB6210:TD=1:GOSUB 6290
1820 BX$(4)=YC$(A):F2=A
1830 B$="ARE YOU SURE Y/N "
1840 XL=0:YL=24:GOSUB 6120
1850 GETKEY A$
1860 IF INSTR("YN",A$)=0 THEN 1850
1870 IF A$="N" THEN BEGIN
1880 A=F1:GOSUB6210:TD=3:GOSUB 6290:F1=0
1890 A=F2:GOSUB6210:TD=3:GOSUB 6290:F2=0
1900 BEND:L1=22:GOSUB 6530:GOTO 1710
1910 REM HUMAN ANSWERED YES
1920 A=F1:GOSUB 6210:TD=2:GOSUB 6280
1930 A=F2:GOSUB 6210:TD=2:GOSUB 6280
1940 REM COMPUTER CHOICE OF CARDS
1950 GC=121-CP(1)
1960 FOR I=1 TO 6:B$=MC$(I)
1970 W$=RIGHT$(B$,1):B$=LEFT$(B$,1)
1980 CA=INSTR(B9$,W$)*16+INSTR(NU$,B$)
1990 POKE Q1+I-1,CA:NEXT I
2000 SYS Z(3),GC
2010 REM REORGINISE HUMANS CARDS
2020 BX=0:FOR I=1 TO 6
2030 IF I<>F1 AND I<>F2 THEN BEGIN
2040 BX=BX+1:YC$(BX)=YC$(I)
2050 BEND
2060 NEXT I:IF CB=0 THEN CB=1
2070 REM GET COMPUTERS HAND
2080 RREG A6:A6=A6+Q5
2090 FOR I=0 TO 3:TP(PEEK(A6+I))=1:NEXT
2100 BX=0:FOR I=1 TO 6
2110 IF TP(I)=0 THEN BEGIN:BX=BX+1
2120 BX$(BX)=MC$(I):BEND
2130 NEXT I
2140 REM SORT BOX INTO ORDER
2150 W$=""
2160 FOR I=1 TO 4:W$=W$+BX$(I):NEXT
2170 S1$=W$:GOSUB 5290:FOR I=1 TO 4
2180 BX$(I)=MID$(S1$,I*2-1,2):NEXT I
2190 REM PUT COMPUTERS CARDS IN ORDER
2200 BX=0:FOR I=1 TO 6
2210 IF TP(I)=1 THEN BEGIN:BX=BX+1
2220 TP(I)=0:MC$(BX)=MC$(I):BEND
2230 NEXT:BX=0
2240 REM DISPLAY START CARD
2250 GOSUB 6510
2260 B$="CUT FOR START CARD"
2270 XL=0:YL=2:GOSUB 6120
2280 B$="START"
2290 XL=9:YL=10:GOSUB 6120
2300 R=FNA(LEN(D$)/2)*2-1
2310 ST$=MID$(D$,R,2)
2320 CD$=ST$:XD=7:YD=11:GOSUB 6280
2330 IF LEFT$(ST$,1)="J" THEN BEGIN
2340 N$="YOU":IF CP=1 THEN N$="I"
2350 B$=N$+" GET TWO FOR"
2360 XL=0:YL=20:GOSUB 6120
2370 B$="HIS HEELS":YL=YL+2:GOSUB 6120
2380 BEND:PT=CP:US=2:GOSUB 4690
2390 SLEEP DT::IF GW THEN 2760
2400 REM SET UP SCREEN TO PEG OUT HAND
2410 GOSUB 6510:FOR I=1 TO 4
2420 CV(I)=INSTR(NU$,LEFT$(MC$(I),1),1)
2430 HV(I)=INSTR(NU$,LEFT$(YC$(I),1),1)
2440 CD$=YC$(I):XD=(I-1)*3:YD=3
2450 GOSUB 6280:TD=4:YD=17:GOSUB 6280
2460 B$=STR$(I):XL=(I-1)*4+1:YL=2
2470 GOSUB 6120:NEXT I
2480 PC=0:TC=0:US=0:GOSUB 4440
2490 REM PEG OUT HANDS
```

```
2500 IF CP=1 THEN PT=2:ELSE PT=1
2510 H=4:C=4:REM CARD COUNT
2520 XL=16:YL=23:B$="TOTAL":GOSUB 6120
2530 REM MAIN CONTROL LOOP FOR PEG OUT
2540 DO:ON PT GOSUB 3050,3480
2550 REM TEST FOR BOTH HANDS CAN'T GO
2560 FL=(G1+G2=2) OR ((C=0) AND G2)
2570 FL=FL OR ((H=0) AND G1)
2580 IF FL THEN GOSUB 4550
2590 IF PT=2 THEN PT=1:ELSE PT=2
2600 REM LOOP IF ANY CARDS LEFT TO PLAY
2610 IF GW THEN EXIT
2620 LOOP WHILE (H+C)
2630 IF GW THEN 2760
2640 IF H+C=0 AND T1=0 THEN GOSUB 4550
2650 REM LAY OUT HANDS
2660 DP=1:BX=0:IF GW THEN 2760
2670 IF CP=1 THEN PT=2:ELSE PT=1
2680 GOSUB 5450:IF GW THEN 2760
2690 IF PT=1 THEN PT=2:ELSE PT=1
2700 GOSUB 5450:IF GW THEN 2760
2710 BX=1:GOSUB 5450:IF GW THEN 2760
2720 REM REST OF GAME
2730 SLEEP DT
2740 IF CP=1 THEN CP=2:ELSE CP=1
2750 GOTO 1470
2760 REM GAME HAS BEEN WON BY SOMEONE
2770 GOSUB 6510
2780 B$="GAME OVER"
2790 XL=0:YL=2:TL=1:GOSUB 6120
2800 IF CP(1)>CP(2) THEN GW=1:ELSE GW=2
2810 N$="I":IF GW=2 THEN N$="YOU"
2820 GP(GW)=GP(GW)+1:B$=N$+" WIN"
2830 XL=0:YL=4:GOSUB 6120
2840 B$="GAMES-"
2850 XL=0:YL=6:GOSUB 6120
2860 B$="ME "+STR$(GP(1))
2870 XL=0:YL=8:GOSUB 6120
2880 B$="YOU"+STR$(GP(2))
2890 XL=0:YL=10:GOSUB 6120
2900 B$="ANOTHER GAME Y/N"
2910 XL=0:YL=12:GOSUB 6120
2920 IF GP=1 THEN GP=2:ELSE GP=1
2930 GETKEY A$:CR$=CHR$(13)
2940 IF A$="N" THEN BEGIN
2950 FOR I=1 TO 4:SPRITE I,0:NEXT
2960 IF DK=0 THEN 3010
2970 SCRATCH"CRIB WINS"
2980 DOPEN#1,"CRIB WINS",W
2990 PRINT#1,GP(1);CR$;GP(2);CR$;GP
3000 DCLOSE#1
3010 GRAPHIC 0:COLOR 5,2:GRAPHIC CLR
3020 SCNCLR:BEND:END
3030 IF A$<>"Y" THEN 2930
3040 GOSUB 6510:XL=0:YL=3:GOTO 1390
3050 REM COMPUTER CALCULATION OF LAY
3060 IF (C=0) OR G1 THEN RETURN
3070 REM TEST IF COMPUTER CAN LAY
3080 S1=31-TC:FL=0:PS=0:FOR I=1 TO 4
3090 CV=CV(I):IF CV>10 THEN CV=10
3100 IF CV AND CV<=S1 THEN FL=1:I=4
3110 NEXT I:DP=0
3120 REM COMPUTER CAN'T GO
3130 IF FL=0 THEN BEGIN:XL=0:YL=B1
3140 B$="I CAN'T GO":G1=1:GOSUB 6120
3150 SLEEP DT:BEND:RETURN
3160 REM COMPUTER CHOOSES CARD TO LAY
3170 REM IF SCORE IS ZERO
3180 CH=0:IF TC=0 THEN BEGIN
3190 FOR I=1 TO 4:CV=CV(I)
3200 IF CV THEN BEGIN
3210 IF CV<>5 THEN CH(5)=I:CH=I:I=4
3220 BEND
3230 NEXT I:BEND:IF CH GOTO 3410
3240 REM PLAY LAST CARD
3250 IF C=1 THEN BEGIN:FOR I=1 TO 4
3260 IF CV(I) THEN CH=I:I=4
3270 NEXT I:BEND:GOTO 3430
3280 REM COMPUTER CHOOSES ANOTHER CARD
3290 PG=PG+1:TK=TC:FOR I=1 TO 4
```

```
3300 CV=CV(I):IF CV THEN BEGIN
3310 IF CV>10 THEN CV=10
3320 IF CV+TK<32 THEN BEGIN
3330 PG(PG)=CV(I):GOSUB 3780
3340 CH(I)=I:PS(I)=PC:CH(5)=I:BEND
3350 BEND
3360 NEXT I:TC=TK:PG=PG-1
3370 REM SELECT BEST CARD TO PLAY
3380 CH=0:FOR I=1 TO 4
3390 IF PS(I)>PS THEN PS=PS(I):CH=I
3400 PS(I)=0:NEXT I
3410 IF PS=0 THEN CH=CH(5)
3420 REM PLAY CARD
3430 PG=PG+1:PG(PG)=CV(CH):CV(CH)=0
3440 CD$=MC$(CH)
3450 TD=2:YD=17:XD=(CH-1)*3:GOSUB 6280
3460 LA=1:G1=0:DP=1:GOSUB 3780:C=C-1
3470 RETURN
3480 REM HUMAN CHOICE OF CARDS
3490 IF (H=0) OR G2 THEN RETURN
3500 B$="YOUR LAY 1-4,0"
3510 XL=0:YL=12:GOSUB 6120
3520 GETKEY A$
3530 IF INSTR("01234",A$,1)=0 THEN 3520
3540 A=VAL(A$):FG=0:IF A=0 THEN BEGIN
3550 REM CHECK IF HUMAN CAN GO
3560 FOR A=1 TO 4:HV=HV(A):IF HV>10 THEN HV=10
3570 IF HV>10 THEN HV=10
3580 IF HV AND HV+TC<31 THEN FG=1:A=4
3590 NEXT A:BEND:A=0
3600 IF FG THEN BEGIN
3610 YL=YL+1:B$="OH YES YOU CAN."
3620 GOSUB 6120:PLAY"ABABAB":SLEEP DT
3630 BEND:GOSUB 4630:GOTO 3500
3640 IF A=0 THEN G2=1:GOSUB 4630:RETURN
3650 IF HV(A)=0 THEN 3520
3660 REM TRYING TO GO OVER 31 ?
3670 HV=HV(A):IF HV>10 THEN HV=10
3680 IF HV+TC>31 THEN BEGIN
3690 YL=YL+1:B$="OVER 31."
3700 GOSUB 6120:PLAY "ABABAB":SLEEP DT
3710 GOSUB 4630:BEND:GOTO 3500
3720 REM PLAY CARD
3730 GOSUB 4630
3740 PG=PG+1:PG(PG)=HV(A):HV(A)=0
3750 CD$=YC$(A):TD=2:YD=3:XD=(A-1)*3
3760 GOSUB 6280:LA=2:G2=0:DP=1
3770 GOSUB 3780:H=H-1:RETURN
3780 REM PEGOUT
3790 IF DP THEN BEGIN:B1=12
3800 XD=12:YD=PG*2-1:GOSUB 6280
3810 BEND
3820 PC=0:TC=0:T1=0:FU=0
3830 REM ADD UP TOTAL OF PEGGED CARDS
3840 FOR J=1 TO PG:P1=PG(J)
3850 IF P1>10 THEN P1=10
3860 TC=TC+P1:NEXT J
3870 LC=PG(PG):B$=STR$(TC)
3880 B$=RIGHT$(B$,2)
3890 IF DP THEN XL=18:YL=24:GOSUB 6120
3900 REM LOOK FOR 15'S AND 31'
3910 XL=0:IF TC=15 THEN BEGIN:US=2
3920 B$="15 FOR TWO":FU=1:PC=PC+US
3930 BEND:IF DP THEN GOSUB 4520
3940 REM IS IT 31
3950 IF TC=31 THEN BEGIN:US=2:PC=PC+US
3960 B$="31 FOR TWO":FU=1:T1=1
3970 BEND:IF DP THEN GOSUB 4520
3980 REM LOOK FOR PAIRS,TRIPLITS,QUADS
3990 IF PG>1 THEN BEGIN:MP=0
4000 FOR J=PG TO 2 STEP -1
4010 IF PG(J)<>PG(J-1)THEN J=2:GOTO 4030
4020 MP=MP+1
4030 NEXT J
4040 IF MP THEN BEGIN
4050 PP=MP+1:MP=PP*PP-PP:US=MP:PC=PC+US
4060 IF FU THEN BEGIN
4070 B$="AND"+STR$(PP)+" IS"+STR$(PC)
4080 BEND:GOTO 4100
4090 B$=STR$(TC)+" FOR"+STR$(MP)
4100 FU=1:IF DP THEN  GOSUB 4520
4110 BEND
4120 BEND
4130 REM LOOK FOR RUNS
4140 IF PG>2 THEN BEGIN
4150 N=0:DO:N=N+1:BL$=BK$:SC=PG-N+1
4160 FOR J=N TO PG:MID$(BL$,PG(J))="1"
4170 NEXT J
4180 FL=INSTR(BL$,LEFT$(SR$,SC),1)
4190 IF FL THEN EXIT
4200 LOOP UNTIL SC=3
4210 REM TEST FOR FALSE RUNS
4220 IF FL AND PG>3 AND N>1 THEN BEGIN
4230 PU=PG(N-1)
4240 IF MID$(BL$,PU,1)="1" THEN BEGIN
4250 BM$=BK$:CT=0:FOR J=N-1 TO PG-1
4260 MID$(BM$,PG(J),1)="1":CT=CT+1
4270 NEXT J:FL=INSTR(BM$,LEFT$(SR$,CT))
4280 IF FL THEN FL=0:ELSE FL=1
4290 BEND
4300 BEND
4310 IF FL THEN BEGIN:US=SC:PC=PC+US
4320 IF FU THEN BEGIN
4330 B$="AND"+STR$(SC)+" IS"+STR$(PC)
4340 BEND:GOTO 4360
4350 B$=STR$(TC)+" FOR"+STR$(SC)
4360 FU=1:IF DP THEN GOSUB 4520
4370 BEND
4380 BEND
4390 IF DP=0 OR (FU+T1)=0 THEN RETURN
4400 SLEEP DT
4410 IF FU THEN GOSUB 4630
4420 IF T1=0 THEN RETURN
4430 REM CLEAR PEG SCORE
4440 FOR J=1 TO PG
4450 PG(J)=0:NEXT J:G1=0:G2=0:TC=0
4460 SP$=LEFT$(CS$,6)
4470 CHAR 1,24,24,SP$
4480 FOR J=1 TO PG*2+8
4490 CHAR 1,24,J,SP$:REM 6 SPACES
4500 NEXT J:PG=0
4510 RETURN
4520 REM WRITE SCORE ON SCREEN
4530 XL=0:YL=B1:GOSUB 6120
4540 GOSUB 4680:B1=B1+1:RETURN
4550 REM LAST CARD SUBROUTINE
4560 N$="I":IF LA=2 THEN N$="YOU"
4570 B$=N$+" GET ONE ":XL=0:YL=13
4580 GOSUB 6120:B$="FOR LAST":PT=LA
4590 YL=YL+1:GOSUB 6120:US=1:GOSUB 4680
4600 SLEEP DT:GOSUB 4630:LA=0:TC=0
4610 BEND:GOSUB 4440
4620 RETURN
4630 REM CLEAR SPACE TO WRITE SOMETHING
4640 SP$=LEFT$(CS$,22)
4650 FOR L1=12 TO 16
4660 CHAR 1,0,L1,(SP$)
4670 NEXT L1:RETURN
4680 REM UPDATE SCORES AND TEST FOR WIN
4690 CP(PT)=CP(PT)+US
4700 B$=STR$(CP(PT))
4710 B$=RIGHT$(B$,LEN(B$)-1)
4720 B$="  "+B$:B$=RIGHT$(B$,3)
4730 REM MOVE HUMANS PEGS
4740 IF PT=2 THEN BEGIN:X9=124
4750 IF SP(1)>SP(2) THEN SP=2:ELSE SP=1
4760 IF FNB(2)=226 AND FNB(1)<>226 THEN SP=2
4770 IF SP(SP)=1 THEN MOVSPR SP,289,216
4780 BEND:MU=1
4790 REM MOVE COMPUTERS PEGS
4800 IF PT=1 THEN BEGIN:X9=142
4810 IF SP(3)>SP(4) THEN SP=4:ELSE SP=3
4820 IF FNB(4)=226 AND FNB(3)<>226 THEN SP=4
4830 IF SP(SP)=1 THEN MOVSPR SP,325,216
4840 BEND
4850 DR=D(SP)
4860 REM DISPLAY SCORE
4870 Y9=24*8:GOSUB 6160
4880 IF CP(PT)=1 THEN 5120
4890 REM LOOK FOR WINNING SCORE
```

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```
4900 IF CP(PT)>120 THEN BEGIN
4910 REM MOVE PEG TO CENTER POINT
5520 IF PT=1 THEN T$=MC$(P):GOTO5540
5530 T$=YC$(P)
5540 W$=RIGHT$(T$,1):B$=LEFT$(T$,1)
5550 CA=INSTR(B9$,W$)*16+INSTR(NU$,B$)
5560 POKE Q2+P-1,CA:RP$(P)=T$
5570 NEXT P:RP$(P)=ST$:W$=W$+ST$
5580 W$=RIGHT$(ST$,1):B$=LEFT$(ST$,1)
5590 CA=INSTR(B9$,W$)*16+INSTR(NU$,B$)
5600 POKE Q2+P-1,CA
5610 FOR P=1 TO 5:RS(P)=0:RC(P)=0
5620 CD$=RP$(P):XD=(P-1)*3:YD=4
5630 GOSUB 6280:NEXT P
5640 B$="START"
5650 YL=3:XL=16:GOSUB 6120
5660 SYS Z(2):TC=0
5670 REM SHOW CARDS
5680 CA=PEEK(Q3):PE=Q4
5690 IF CA=0 THEN BEGIN
5700 B$="NOTHING SCORED"
5710 XL=0:YL=PD:TL=255:GOSUB 6120
5720 SLEEP DT:BEND:RETURN
5730 REM MARK CARDS THAT SCORE
5740 FOR P=0 TO CA-1
5750 P1=PEEK(PE)-1:TZ=PEEK(PE+1)
5760 US=PEEK(PE+2):PE=PE+3:TC=TC+US
5770 FOR P2=0 TO P1:RS(PEEK(PE+P2))=1:NEXT
5780 PE=PE+P1+1:FOR CS=1 TO 5
5790 IF RS(CS)+RC(CS)=1 THEN BEGIN
5800 IF RS(CS) THEN TD=1:ELSE TD=3
5810 CD$=RP$(CS):XD=(CS-1)*3:YD=4
5820 BEND:GOSUB 6280
5830 RC(CS)=RS(CS):RS(CS)=0:NEXT CS
5840 REM PRINT UP SCORE
5850 ON TZ GOTO 5870,5890,5950,6050,6000
5860 REM FIFTEENS
5870 B$="FIFTEEN FOR"+STR$(TC):GOTO 6070
5880 REM PAIRS,TRIPLITS,QUADS
5890 IF TA THEN BEGIN
5900 B$="AND"+STR$(US)+" IS"+STR$(TC)
5910 BEND:GOTO 6070
5920 B$=STR$(P1+1)+" FOR"+STR$(US)
5930 GOTO 6070
5940 REM RUNS
5950 IF TA THEN BEGIN
5960 B$="AND"+STR$(US)+" IS"+STR$(TC)
5970 BEND:GOTO 6070
5980 B$=STR$(P1+1)+" FOR"+STR$(US)
5990 GOTO 6070
6000 REM ONE FOR HIS NOB
6010 B$="ONE FOR HIS NOB"
6020 IF TA THEN B$="AND "+B$
6030 GOTO 6070
6040 REM 4 OR 5 CARD FLUSHES
6050 B$=STR$(US)+" FOR A FLUSH"
6060 IF TA THEN B$="AND"+B$
6070 XL=0:YL=PD:PD=PD+1:TA=1
6080 GOSUB 6120:GOSUB 4680
6090 REM FORCED RETURN IF GAME WON
6100 IF GW THEN P=CA-1
6110 NEXT P:RETURN
6120 REM PLACE LETTERS ON HIRES SCREEN
6130 REM MU HOLDS COLOR SOURCE 1-3
6140 REM TL HOLDS INVERT NUMBER 0-255
6150 X9=XL*6:Y9=YL*8
6160 POKE IV,TL:POKE FC,MU
6170 FOR T9=1 TO LEN(B$)
6180 LT=ASC(MID$(B$,T9,1))
6190 SYS Z(4),LT,X9,Y9:X9=X9+6:NEXT T9
6200 TL=0:MU=3:RETURN
6210 REM CALCULATE CARD POS FOR CHOICE
6220 YD=3:R1=(A-1)*4
6230 IF R1>8 THEN R1=R1-12:YD=13
6240 XD=R1:CD$=YC$(A)
6250 XL=XD+A+1:IF A>3 THEN XL=XL-3
6260 YL=YD-1:B$=RIGHT$(STR$(A),1)
6270 RETURN
6280 REM DISPLAY CARDS ON SCREEN
6290 X1=XD*8:Y1=YD*8
6300 REM INVERT, RESTORE CARD
6310 IF (TD AND 1) THEN BEGIN
6320 COLOR 1,XOR(TD,3)*7+2
6330 SYS Z(6),0,X1,Y1:COLOR 1,2
6340 BEND:TD=0:RETURN
6350 REM CLEAR CARD FROM SCREEN
6360 IF TD=2 THEN BEGIN
6370 SP$="       ":REM 7 SPACES
6380 FOR Y3=0 TO 7
6390 CHAR 1,XD*2,YD+Y3,SP$
6400 NEXT Y3:TD=0:BEND:RETURN
6410 REM DRAW BACK OF CARD
6420 IF TD=4 THEN BEGIN:TD=0
6430 COLOR 1,4:SYS Z(5),0,X1,Y1
6440 COLOR 1,2:BEND:RETURN
6450 REM DRAW CARD
6460 B$=LEFT$(CD$,1):SU$=RIGHT$(CD$,1)
6470 SU=INSTR(B9$,SU$,1)*16
6480 SU=SU+INSTR(NU$,B$,1)
6490 SYS Z(5),SU,X1,Y1:MU=3
6500 COLOR 1,2:RETURN
6510 REM CLEAR LINES
6520 L1=1
6530 L2=23
6540 SP$=CS$+" ":FOR L3=L1 TO L2
6550 CHAR 1,0,L3,SP$:NEXT L3
6560 IF L3=24 THEN CHAR 1,0,L3,CS$
6570 RETURN
6580 REM DECODE CRC DATA STATMENTS
6590 REM  AND POKE INTO MEMORY
6600 READ BA,SA,EA,T1:EQ=0
6610 BANK BA:SYS M1:REM CLEAR CRC
6620 REM READ DATA IN
6630 DO:READ DA$:IF DA$="-9999" THEN EXIT
6640 DA=VAL(DA$)
6650 IF DA < 0 OR DA > 255 THEN 6740
6660 IF LEN(DA$)=3 THEN BEGIN
6670 POKE SA,DA:SA=SA+1:SYS MC,DA
6680 BEND:GOTO 6710
6690 RREG A%,X%:CK=A%*256+X%
6700 IF CK<>VAL(DA$) THEN EQ=1:EXIT
6710 LOOP
6720 IF EQ=0 AND CK=T1 THEN RETURN
6730 REM ERROR FOR DATA READ
6740 GRAPHIC 0:SLOW:COLOR 5,2
6750 PRINT"LINE/DATA ERROR IN LINE";
6760 PRINT PEEK(66)*256+PEEK(65):END
6770 REM PUT SPRITES AT START OF BOARD
6780 MOVSPR 1,289,226:MOVSPR 2,297,226
6790 MOVSPR 3,317,226:MOVSPR 4,325,226
6800 RETURN
6810 REM TRAP DISK ERRORS
6820 REM NO DISK CONNECTED
6830 COLOR 5,2
6840 IF ER=5 THEN DK=0:RESUME
6850 REM NO FILE
6860 IF DS=62 THEN RESUME NEXT
6870 REM DRIVE NOT READY
6880 IF DS=74 THEN BEGIN
6890 SLOW:GRAPHIC 0
6900 SCNCLR 0
6910 PRINT"PUT FORMATTED DISK"
6920 PRINT CHR$(17);"IN DRIVE AND PRESS"
6930 PRINT CHR$(17);"RETURN"
6940 GETKEY A$:IF A$<>CHR$(13) THEN 6940
6950 BEND:FAST:GRAPHIC3:RESUME
6960 GRAPHIC 0:SLOW
6970 PRINT ERR$(ER);EL,DS$
6980 REM MACHINE CODE
6990 DATA 0,4864,7039,52581
```

```
7000 DATA 076,021,019,076,224,019,076,082,019,076,034,024,076,152,024,076,39728
7010 DATA 188,022,076,124,022,169,006,141,096,011,169,004,141,097,011,032,23822
7020 DATA 062,022,160,000,162,000,189,123,011,153,000,011,200,232,224,004,37220
7030 DATA 208,244,032,083,022,208,237,160,063,169,000,153,000,014,136,016,43688
7040 DATA 250,160,012,185,115,027,153,000,014,136,016,247,169,255,141,136,26198
7050 DATA 011,096,141,106,011,169,000,141,121,011,024,162,003,014,106,011,64257
7060 DATA 046,121,011,202,208,247,169,014,141,109,011,169,004,141,096,011,53482
7070 DATA 173,109,011,010,010,170,169,004,141,099,011,189,000,011,168,185,44390
7080 DATA 069,011,172,099,011,153,075,011,232,206,099,011,208,237,032,232,17945
7090 DATA 019,173,101,011,024,010,010,010,013,102,011,174,109,011,157,140,49058
7100 DATA 011,206,109,011,016,202,169,253,141,110,011,162,000,142,101,011,45240
7110 DATA 142,107,011,189,140,011,172,121,011,208,012,205,106,011,144,007,53748
7120 DATA 142,107,011,162,014,208,013,205,101,011,240,008,144,006,141,101,39957
7130 DATA 011,142,107,011,232,224,015,208,218,173,107,011,024,010,010,096,46816
7140 DATA 162,005,142,096,011,238,110,011,174,096,011,138,202,157,091,011,28811
7150 DATA 208,249,142,108,011,142,104,011,142,105,011,142,112,011,162,004,16820
7160 DATA 189,076,011,168,041,240,157,086,011,152,041,015,157,081,011,202,51961
7170 DATA 016,238,162,003,189,086,011,202,048,007,221,086,011,208,021,240,59834
7180 DATA 246,141,104,011,174,096,011,202,224,004,208,016,221,086,011,208,27602
7190 DATA 003,141,105,011,162,004,189,086,011,141,111,011,169,000,141,103,53743
7200 DATA 011,174,096,011,202,138,168,136,048,040,189,081,011,217,081,011,60198
7210 DATA 176,242,072,185,081,011,157,081,011,104,153,081,011,189,091,011,62607
7220 DATA 072,185,091,011,157,091,011,104,153,091,011,169,001,141,103,011,04607
7230 DATA 208,210,173,103,011,208,197,169,000,141,102,011,141,101,011,169,32205
7240 DATA 002,141,097,011,032,062,022,169,000,141,099,011,172,097,011,136,52559
7250 DATA 032,054,022,170,201,011,144,002,169,010,024,109,099,011,141,099,19075
7260 DATA 011,136,016,236,169,015,205,099,011,208,010,169,002,172,097,011,09477
7270 DATA 162,001,032,044,022,032,083,022,208,205,238,097,011,173,097,011,17286
7280 DATA 205,096,011,144,191,240,189,162,000,169,000,141,099,011,141,100,25145
7290 DATA 011,189,081,011,232,236,096,011,176,072,221,081,011,208,005,238,49350
7300 DATA 099,011,208,237,173,099,011,240,232,142,100,011,170,024,105,001,30748
7310 DATA 141,099,011,109,099,011,202,208,250,056,237,099,011,172,099,011,29938
7320 DATA 162,002,032,226,021,174,100,011,173,096,011,201,004,240,186,136,10468
7330 DATA 189,090,011,153,116,011,202,136,016,246,032,004,022,174,100,011,61552
7340 DATA 208,167,173,099,011,208,189,173,096,011,141,097,011,032,062,022,61850
7350 DATA 169,000,141,100,011,172,097,011,136,032,054,022,141,099,011,136,40696
7360 DATA 032,054,022,206,099,011,205,099,011,208,026,136,016,242,173,097,06647
7370 DATA 011,201,002,208,005,238,102,011,208,011,168,162,003,032,044,022,04515
7380 DATA 169,001,141,100,011,032,083,022,208,203,173,100,011,208,010,206,45537
7390 DATA 097,011,173,097,011,201,001,208,180,169,005,141,097,011,173,105,40001
7400 DATA 011,208,013,173,110,011,240,031,206,097,011,173,104,011,240,023,54429
7410 DATA 032,062,022,173,097,011,168,162,004,032,226,021,170,138,157,115,57798
7420 DATA 011,202,208,249,032,004,022,172,096,011,136,185,081,011,201,011,02780
7430 DATA 240,004,136,016,246,096,238,102,011,173,096,011,201,004,240,242,38187
7440 DATA 185,091,011,201,005,240,235,170,189,085,011,205,111,011,208,226,40125
7450 DATA 185,091,011,141,116,011,169,001,168,162,005,032,226,021,032,004,34709
7460 DATA 022,096,141,115,011,140,113,011,142,114,011,024,109,101,011,141,53003
7470 DATA 101,011,096,172,097,011,185,122,011,170,189,090,011,153,115,011,63613
7480 DATA 136,208,243,096,173,096,011,201,004,240,032,172,113,011,200,200,52748
7490 DATA 140,099,011,160,000,174,108,011,185,113,011,157,140,011,200,232,25141
7500 DATA 206,099,011,016,243,142,108,011,238,112,011,096,032,226,021,032,23815
7510 DATA 243,021,032,004,022,096,185,123,011,170,189,080,011,096,173,096,52711
7520 DATA 011,056,237,097,011,141,128,011,174,097,011,138,157,122,011,202,22216
7530 DATA 208,249,096,174,097,011,254,122,011,138,024,109,128,011,221,122,36070
7540 DATA 011,176,005,202,240,021,208,238,236,097,011,240,012,189,122,011,45977
7550 DATA 232,157,122,011,254,122,011,208,239,169,001,096,141,107,011,169,06968
7560 DATA 000,141,111,011,173,107,011,168,136,170,185,140,011,221,140,011,54249
7570 DATA 144,032,240,030,072,189,140,011,153,140,011,104,157,140,011,185,27861
7580 DATA 146,011,072,189,146,011,153,146,011,104,157,146,011,169,001,141,11594
7590 DATA 111,011,202,136,016,212,173,111,011,208,196,096,142,132,011,140,45411
7600 DATA 133,011,169,000,133,251,173,133,011,041,248,133,250,010,038,251,60525
7610 DATA 010,038,251,024,101,250,133,250,169,028,101,251,133,251,173,132,23474
7620 DATA 011,074,074,024,101,250,133,250,144,002,230,251,162,007,165,134,24095
7630 DATA 010,010,010,010,009,002,160,005,145,250,136,016,251,169,040,024,04920
7640 DATA 101,250,133,250,144,002,230,251,202,016,227,096,174,134,011,172,60269
7650 DATA 135,011,032,188,022,032,068,023,169,004,162,016,032,097,023,169,54047
7660 DATA 003,162,018,032,097,023,160,058,169,002,162,020,032,097,023,136,14286
7670 DATA 208,246,169,003,162,018,032,097,023,169,004,162,016,032,097,023,41115
7680 DATA 032,068,023,096,024,169,005,109,134,011,141,132,011,169,003,141,22373
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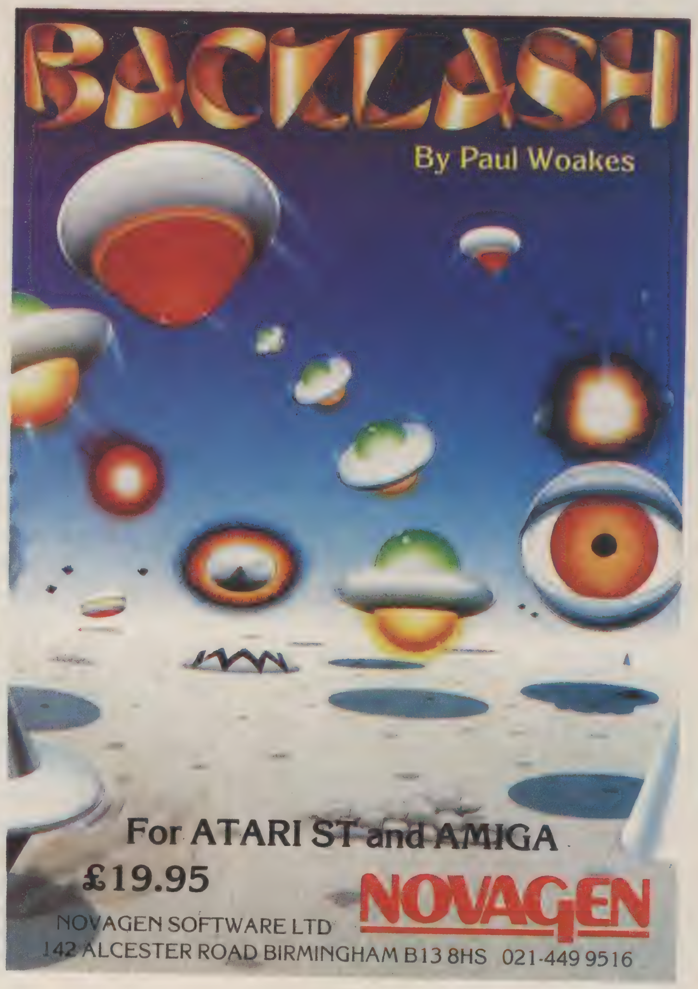

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7690 DATA 131,011,162,016,032,141,023,238,132,011,202,208,247,238,133,011,41915
7700 DATA 096,024,109,134,011,141,132,011,169,003,141,131,011,032,141,023,41459
7710 DATA 238,132,011,169,001,141,131,011,032,141,023,238,132,011,202,208,59366
7720 DATA 247,169,003,141,131,011,032,141,023,238,133,011,096,072,138,072,61060
7730 DATA 152,072,173,131,011,024,162,003,106,202,208,252,133,089,174,132,34755
7740 DATA 011,142,129,011,172,133,011,204,136,011,240,054,169,000,141,136,10225
7750 DATA 011,133,252,152,041,007,141,130,011,152,041,248,072,074,074,074,46938
7760 DATA 133,253,104,024,162,003,010,046,136,011,202,208,249,024,109,130,08170
7770 DATA 011,133,252,173,136,011,101,253,105,032,133,253,173,133,011,141,12126
7780 DATA 136,011,165,252,133,250,165,253,133,251,173,129,011,041,252,010,38754
7790 DATA 144,002,230,251,024,101,250,133,250,144,002,230,251,173,129,011,04187
7800 DATA 041,003,170,169,063,224,000,240,011,056,106,106,024,102,089,102,42370
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7840 DATA 011,240,020,024,169,009,101,142,133,142,144,236,230,143,208,232,05889
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7890 DATA 238,133,011,192,008,208,192,096,142,134,011,140,135,011,201,000,41100
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8080 DATA 052,032,013,013,026,026,039,039,052,052,019,045,001,000,040,124,13176
8090 DATA 124,124,056,016,000,002,000,016,056,124,124,124,016,056,003,000,09712
8100 DATA 016,056,124,124,056,016,000,004,016,056,084,238,084,016,056,000,40860
8110 DATA 032,000,000,000,000,000,000,000,000,039,024,048,096,000,000,000,29461
8120 DATA 000,000,044,000,000,000,000,048,048,016,048,045,000,000,000,056,33048
8130 DATA 056,000,000,000,046,000,000,000,000,000,000,016,016,047,000,004,53962
8140 DATA 008,016,032,064,128,000,048,048,072,072,072,072,072,048,000,049,21209
8150 DATA 048,112,016,016,016,016,124,000,050,056,068,004,056,064,064,124,25250
8160 DATA 000,051,048,072,008,016,008,072,048,000,052,024,040,072,072,124,10270
8170 DATA 008,008,000,053,120,064,064,112,008,008,112,000,054,016,032,064,20276
8180 DATA 112,072,072,048,000,055,120,008,008,016,016,016,016,000,056,048,00437
8190 DATA 072,072,048,072,072,048,000,057,048,072,072,056,008,008,008,000,32690
8200 DATA 063,048,072,008,016,016,000,016,000,065,016,040,068,068,124,068,19442
8210 DATA 068,000,066,120,068,068,120,068,068,120,000,067,028,032,064,064,37183
8220 DATA 064,032,028,000,068,112,072,068,068,068,072,112,000,069,124,064,16617
8230 DATA 064,120,064,064,124,000,070,124,064,064,120,064,064,064,000,071,16684
8240 DATA 024,032,064,076,068,036,024,000,072,068,068,068,124,068,068,068,00432
8250 DATA 000,073,124,016,016,016,016,016,124,000,074,124,016,016,016,080,25554
8260 DATA 080,032,000,075,068,072,080,096,080,072,068,000,076,064,064,064,11719
8270 DATA 064,064,064,120,000,077,068,108,084,068,068,068,068,000,078,100,41311
8280 DATA 084,084,076,076,068,068,000,079,016,040,068,068,068,040,016,000,24728
8290 DATA 080,120,068,068,120,064,064,064,000,081,016,040,068,084,072,044,50166
8300 DATA 020,000,082,120,072,072,112,080,072,072,000,083,056,064,064,048,39966
8310 DATA 008,008,112,000,084,124,016,016,016,016,016,000,085,072,072,06258
8320 DATA 072,072,072,072,048,000,086,072,072,072,072,072,048,048,000,087,37691
8330 DATA 068,068,068,068,084,084,040,000,088,068,068,040,016,040,068,068,47669
8340 DATA 000,089,068,068,040,016,016,016,016,000,090,124,004,008,016,032,18874
8350 DATA 064,124,000,032,000,000,168,000,000,168,000,000,032,000,000,000,52581
8360 DATA -9999
```

EXTENDED KEYBOARD

By A. Cloke

C-128 in 64 mode
A very useful utility that enables the owners of Commodore 128s to use the numeric keypad and other additional keys while in 64 mode. As these keys are not normally available in 64 mode they need not retain the same function. A.Cloke has taken advantage of this and explains the benefits.

This utility allows the user to operate the extended keyboard on the Commodore-128, in 64 mode. The extra keyboard was only rendered inoperative by the Commodore-64's KERNAL, copied exactly into the Commodore-128 to enable complete software compatability in 64 mode. The VIC chip still registers when the extra keys are pressed, they are just not supported by the 64's KERNAL.

This short programme tests whether the extra keys are pressed, and if so places them in the keyboard buffer. It must be entered in 64 mode and then RUN to install the machine-code routine. It is activated by the command SYS 49152. N.B. When RUN/STOP RESTORE is pressed the routine is stopped and must be re-activated. It is fully compatable with the POKEs for repeating keys, i.e.

POKE 650, 128 — All keys repeated.
POKE 650, 64 — No keys repeated.
POKE 650, 0 — Cursor/Delete keys repeated (default).

The special editing keys (ESC, ALT, etc.) do not perform the same function as in 128 mode, instead they can be programmed to respond like other keys. This can be useful if a key does not respond well or has broken, or if some colour change needs to be easily evoked. For example, the ALT key could be programmed to change the cursor colour to light green and the ESC key can be programmed to act like SHIFT-RETURN (to escape from inside a quote field). The following table lists the locations of these editing keys:-

Help	— 49324
Tab	— 49327
Esc	— 49332
Line Feed	— 49335
Alt	— 49340
No Scroll	— 49347

N.B. The keys Caps Lock and 40/80 Display are not supported by this programme.

To programme them, simply POKE the ASCII value of the required character into the relevant location, e.g. POKE 49332, 141 will programme SHIFT-RETURN to the Esc key.

Or as an aid to entering data statements try: POKE 49342,44.This will change the '.' into a ','.

N.B. Reset the computer using the RUN/STOP restore combination BEFORE changing any of these values.

It is important to note that, unfortunately, it is highly unlikely that this routine will work in any commercial software.

BASIC LOADER

```
0 REM ***********************
1 REM **                   **
2 REM ** EXTENDED KEYBOARD **
3 REM **                   **
4 REM **  (C) BY A. CLOKE  **
5 REM **                   **
6 REM ***********************
10 L= 49152
20 FOR X=0 TO  13 :T=0:FOR Y=0 TO 14
30 READ A:IF A <0 OR A >255 THEN 60
40 POKE L,A:L=L+1:T=T+A:NEXT
50 READ A:T=T-(INT(T/256)*256)
60 IF T<>A THEN PRINT"DATA ERROR IN LINE"1000+(X*10)"CHECKSUM <>"A:STOP
70 PRINT 1000+(X*10)"OK":NEXT
1000 DATA 173,020,003,141,170,192,173,021,003,141,171,192,120,169,025, 178
1010 DATA 141,020,003,169,192,141,021,003,088,096,162,000,169,003,141, 069
```

BASIC LOADER (continued)

```
1020 DATA 167,192,169,255,141,000,220,169,254,141,047,208,072,173,001,  161
1030 DATA 220,160,008,074,144,019,232,136,208,249,104,010,206,167,192,  081
1040 DATA 208,233,169,000,141,168,192,076,154,192,104,164,198,192,010,  153
1050 DATA 240,077,173,168,192,208,032,173,138,002,201,064,240,020,201,  081
1060 DATA 128,240,008,224,019,144,012,224,023,176,008,169,018,141,169,  167
1070 DATA 192,076,114,192,169,000,141,169,192,189,172,192,205,168,192,  059
1080 DATA 240,011,153,119,002,141,168,192,230,198,076,154,192,173,169,  170
1090 DATA 192,240,016,206,169,192,208,011,169,004,141,169,192,189,172,  222
1100 DATA 192,076,122,192,169,255,141,047,208,169,127,141,000,220,108,  119
1110 DATA 170,192,000,000,000,000,000,072,056,053,084,050,052,055,049,  065
1120 DATA 069,043,045,076,013,054,057,051,065,048,046,145,017,157,029,  147
1130 DATA 078,000,000,000,000,000,000,000,000,000,000,000,000,000,000,  078
```

ASSEMBLER LISTING

```
1 ! **********************
2 ! **                  **
3 ! ** EXTENDED KEYBOARD **
4 ! **                  **
5 ! **  (C) BY A. CLOKE  **
6 ! **                  **
7 ! **********************
100 *=$C000
110 LDA $0314 ! TAKE NOTE OF OLD
120 STA INTJMP ! INTERRUPT POINTER.
130 LDA $0315
140 STA INTJMP+1
150 SEI
160 LDA #<INTSTR ! SET UP NEW
170 STA $0314 ! INTERRUPT.
180 LDA #>INTSTR
190 STA $0315
200 CLI
210 RTS
220 INTSTR LDX #$00 ! INTERRUPT ENTRY POINT.
230 LDA #$03
240 STA COUNT
250 LDA #$FF ! PREVENT STANDARD
260 STA $DC00 ! KEYBOARD INTERFERING.
270 LDA #$FE ! START AT COLUMN 0.
280 INTLP0 STA $D02F
290 PHA
300 LDA $DC01 ! READ OFF ROW NUMBERS.
310 LDY #$08
320 INTLP1 LSR A
330 BCC INTKEY ! IF KEY PRESSED, LOG IT.
340 INX
350 DEY
360 BNE INTLP1 ! REPEAT FOR ALL 8 ROWS.
370 PLA
380 ASL A
390 DEC COUNT ! REPEAT FOR ALL 3 COLUMNS.
400 BNE INTLP0
410 LDA #$00 ! IF NO KEY PRESSED,
420 STA LSTKEY ! RESET LOG OF LAST KEY.
430 JMP INTSK0
440 !
450 INTKEY PLA ! EVEN UP STACK.
460 LDY $C6 ! SKIP, IF KEYBOARD BUFFER
470 CPY #$0A ! ALREADY FULL.
480 BEQ INTSK0
490 LDA LSTKEY ! CHECK FOR A POSSIBLE REPEAT.
500 BNE INTSK1
510 LDA $028A ! LOAD REPEAT FLAG.
520 CMP #$40 ! NO REPEAT?
530 BEQ INTSK3
540 CMP #$80 ! ALL REPEAT?
550 BEQ INTSK5
560 CPX #$13 ! CHECK FOR CURSOR KEYS,
570 BCC INTSK3 ! ALWAYS REPEATED.
580 CPX #$17
590 BCS INTSK3
600 INTSK5 LDA #$12 ! SET UP REPEAT.
610 STA RPTCT1
620 JMP INTSK1
630 INTSK3 LDA #$00 ! SET UP NO REPEAT.
640 STA RPTCT1
650 INTSK1 LDA KEYCOD,X
660 CMP LSTKEY ! IF SAME KEY AS LAST TIME
670 BEQ INTSK2 ! BRANCH TO DELAY ROUTINE.
680 INTSK4 STA $0277,Y ! STORE KEY IN BUFFER,
690 STA LSTKEY
700 INC $C6 ! AND INCREASE POINTER.
710 JMP INTSK0
720 INTSK2 LDA RPTCT1 ! IF NO REPEAT, EXIT.
730 BEQ INTSK0
740 DEC RPTCT1 ! DECREASE DELAY COUNTER.
750 BNE INTSK0
760 LDA #$04 ! IF ZERO, RESET REPEAT,
770 STA RPTCT1
780 LDA KEYCOD,X ! AND LOG IT IN
790 JMP INTSK4 ! KEYBOARD BUFFER AGAIN.
800 INTSK0 LDA #$FF ! PREVENT EXTENDED KEYBOARD
810 STA $D02F ! FROM INTERFERING WITH
820 LDA #$7F ! STANDARD KEYBOARD
830 STA $DC00 ! DECODING ROUTINE.
840 JMP (INTJMP) ! JUMP BACK TO STANDARD IRQ.
850 !
860 COUNT BYT 0 ! COLUMN COUNTER.
870 LSTKEY BYT 0 ! LAST KEY LOG BYTE.
880 RPTCT1 BYT 0 ! REPEAT COUNTER.
890 INTJMP BYT 0,0 ! STANDARD IRQ ROUTINE POINTER.
900 KEYCOD TXT "H85T2471E+-L" ! EXTENDED
910 BYT $0D ! KEYBOARD DECODE TABLE.
920 TXT "693A0.○Q│]N"
930 !
940 !   SEQUENCE OF UNDERLINED CHARACTERS
950 !             IN LINE 920 :-
960 ! [CRSR UP],[CRSR DN],[CRSR LT],[CRSR RT].
970 END
```

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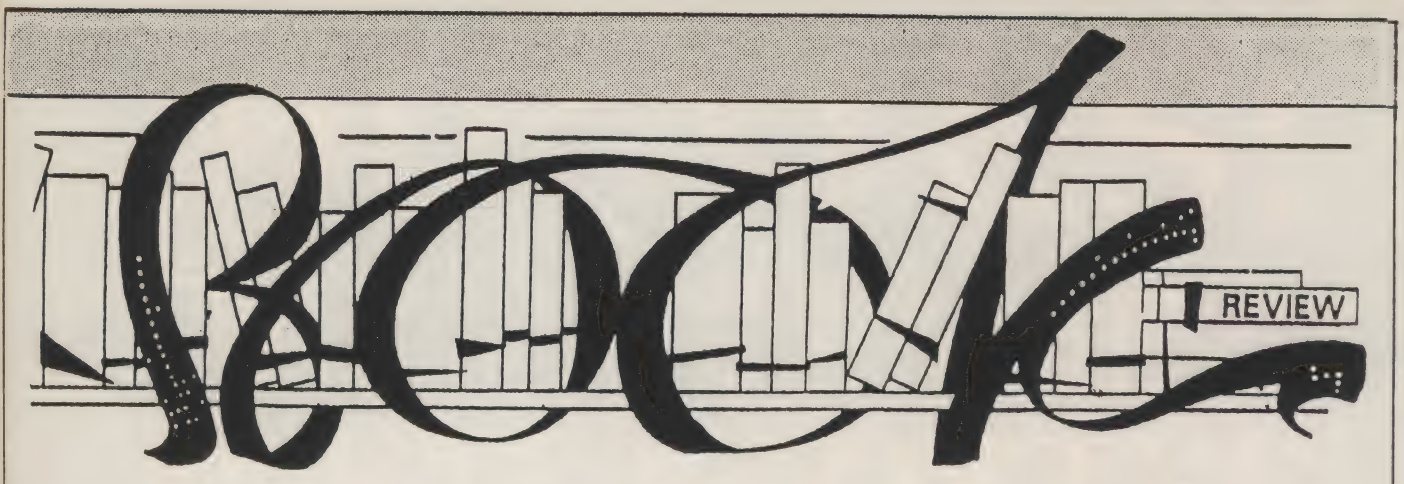

BIG BLUE

by
Richard Thomas DeLamarter
(Macmillan £14.95)

IBM — or the International Business Machines Corporation, to give it its full name — was born in New York, in February 1924. You could say its mother was the Computing-Tabulating-Recording Company, (an offshoot of the National Cash Register Co.), which rented out tabulating machines and sold blank punch cards to American firms who were anxious to mechanise their accounting systems. Its father was Thomas J. Watson, a one-time travelling salesman, who became, for forty years, IBM's Chief Executive.

Thomas J. Watson came into IBM via a job as a cash-register peddler for National Cash Registers. Ruthless and ambitious, he rose to become an executive, learning everything he knew from John Patterson the domineering head of NCR, a man who 'viewed all challengers to his company's manifest destiny as just so many dogs to decapitate'. But when the US government prosecuted NCR under the anti-trust laws Patterson turned on his heir-apparent and Watson was eventually fired. To quote Richard DeLamarter, the author of 'Big Blue', 'Humiliated, Watson took his revenge in the way he knew best. He would build a company even bigger and more powerful than NCR, and it would be under his complete control.' That company was IBM.

Richard DeLamarter spent eight years as a Senior Economist for the American Justice Department, working on the US Government's anti-trust case against IBM and then, to his surprise and frustration, the case was dropped by the Reagan administration. It seems that Mr DeLamarter was, understandably, incensed at this decision. After all, he had put in thirteen years work gathering information from many sources to find it dumped, as it were. So, rather than let it all go to waste, he decided to put it all into a book. 'Big Blue' is the result.

The facts and figures he has amassed are certainly impressive, not only in demonstrating how huge a conglomerate IBM has become but also in showing how important its business is to the economy of many nations. For, without the investment in a number of countries, including the UK to which IBM has committed itself those economies would be noticeably affected.

How did IBM get to become the mega-corporation it is today? Well, according to the author, through price discrimination, which is what happens when, over an extended period of time, a supplier charges different prices to different customers for what are essentially the same goods. The company also markets computers which are, he says, deliberately constructed so that only IBM peripherals are compatible. Of course, in time rival companies manage to manufacture compatible products but, before long, IBM have introduced a more advanced model and the whole thing starts over again.

But what Mr DeLamarter is more afraid of than IBM's business ethics is that it is — or that it may be, he says — in a position to dominate the world's communications networks. A substantial number of the world's commercial computers, from Buffalo to Beijiing, are supplied by IBM and it is now, he alleges, seeking to capture the 'high ground' in the worldwide communications market just as it has in computers. Mr DeLamarter may well be right, his credentials are impressive so he should know what well be right, his credentials are impressive so he should know what he's writing about. But reading 'Big Blue'. I get the impression that most of IBM's 'sharp practices' are just common-or-garden business acumen and as for taking over the world, does it really have the desire to do so? I would imagine that sometime in the future it may well have that ability and Mr DeLamarter is convinced that that is the Corporations ultimate aim, but it really does seem a little far-fetched.

'Big Blue' is certainly interesting, if only for the story of how one small US company has attained such worldwide importance. But the impression I received on reading this book was that Richard DeLamarter had written it with an attitude of 'If I can't get 'em one way, (through the courts), I'll get 'em another'. There is a petulant tone to his writing, which leads one to feel that he's overstating his case. However, it is true that IBM has the power to manipulate prices, charging one country more for products than another — which of course may be to IBM's shareholder's advantage but is to the disadvantage of the inhabitants of many poorer countries. And there are many more activities where IBM is typical of supranational corporations whose interests override those of the countries in which they work is a pity that Mr DeLamarter does not put the case against IBM — and case there is — with great conviction.

D.M.

Speaker for the Dead

Speaker for the Dead reviewed in November CCI won the Hugo for the best SF book of the year.

DPaint — Upgrades

Electronic Arts tells us that there is now available to owners of Deluxe Paint I an upgrade that lets them obtain DPaint II for just £29.95. This will interest all recent buyers of Amiga 500s in the U.K. as they recieved DPaint I free with the computer.

To get the DPaint II upgrade, you have to send in with the money the front cover of the DPaint I manual. If, like many early buyers of DPaint, you have a U.S. NTSC standard version, then you can exchange it for a PAL version by sending Electronic Arts the front cover of your manual and £5.

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Nu Soft	137, 140
Oxxi Inc.	139
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Psygnosis	156
Precision	124
Ramsoft	179
Reactime Associates	127
Robtek	45, 81
R 'N' H Microtec	179
Screens Micro Computers	
Selec	184
Sixty Four Software Centre	23, 103
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U.S. Gold	3, 67, 92, 97
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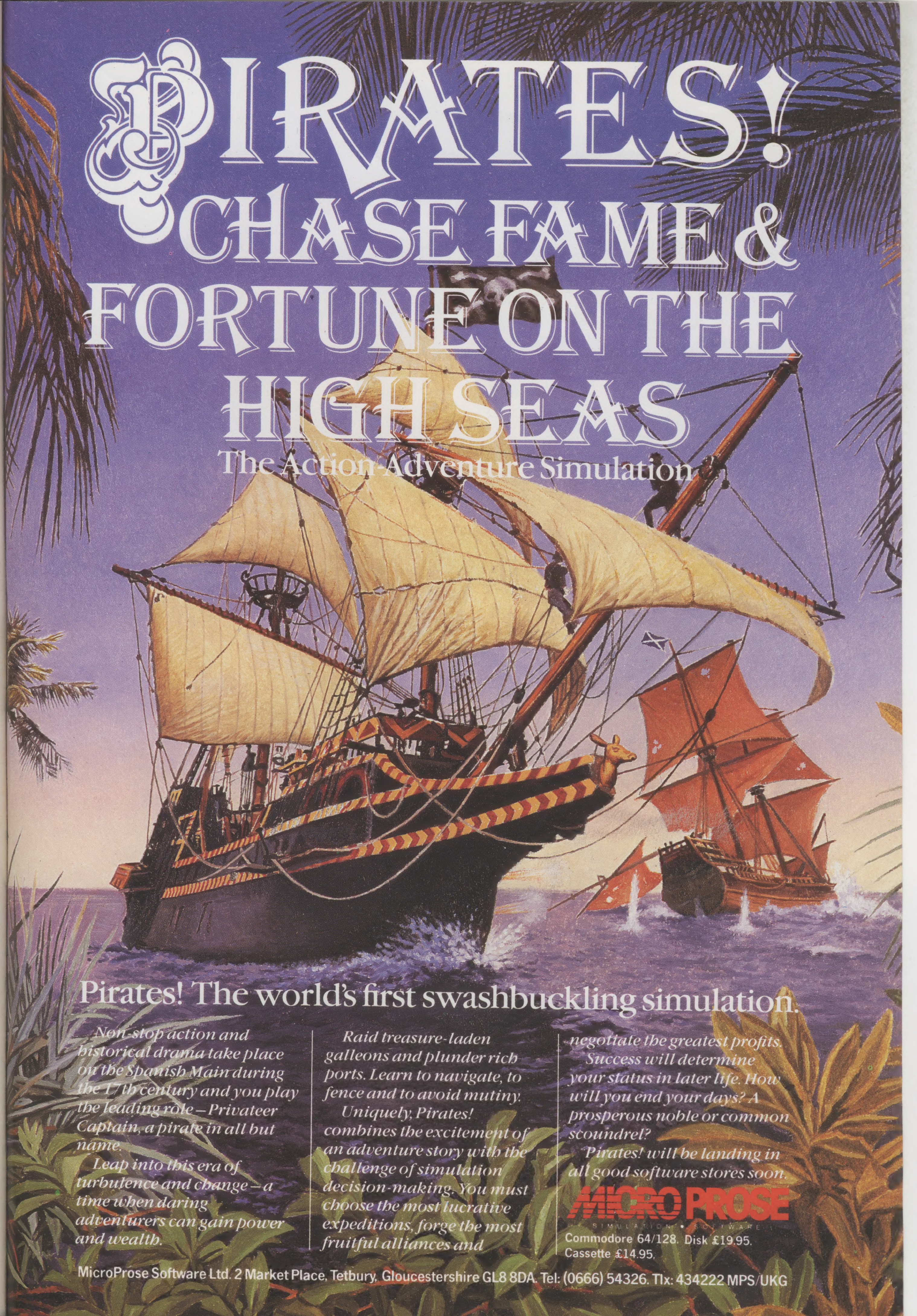
York Electronic Research	37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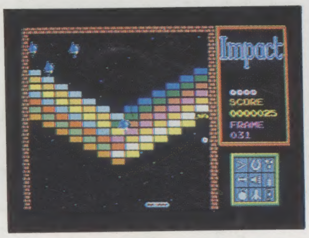
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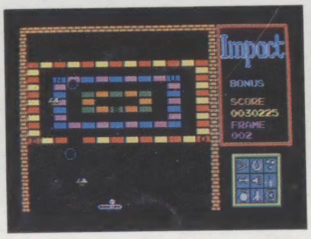
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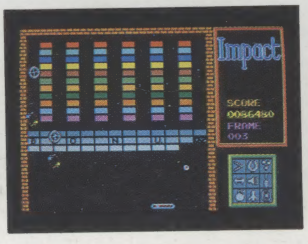
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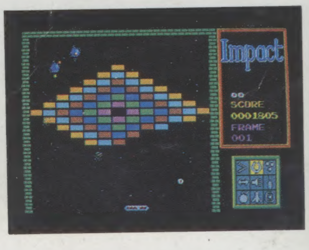
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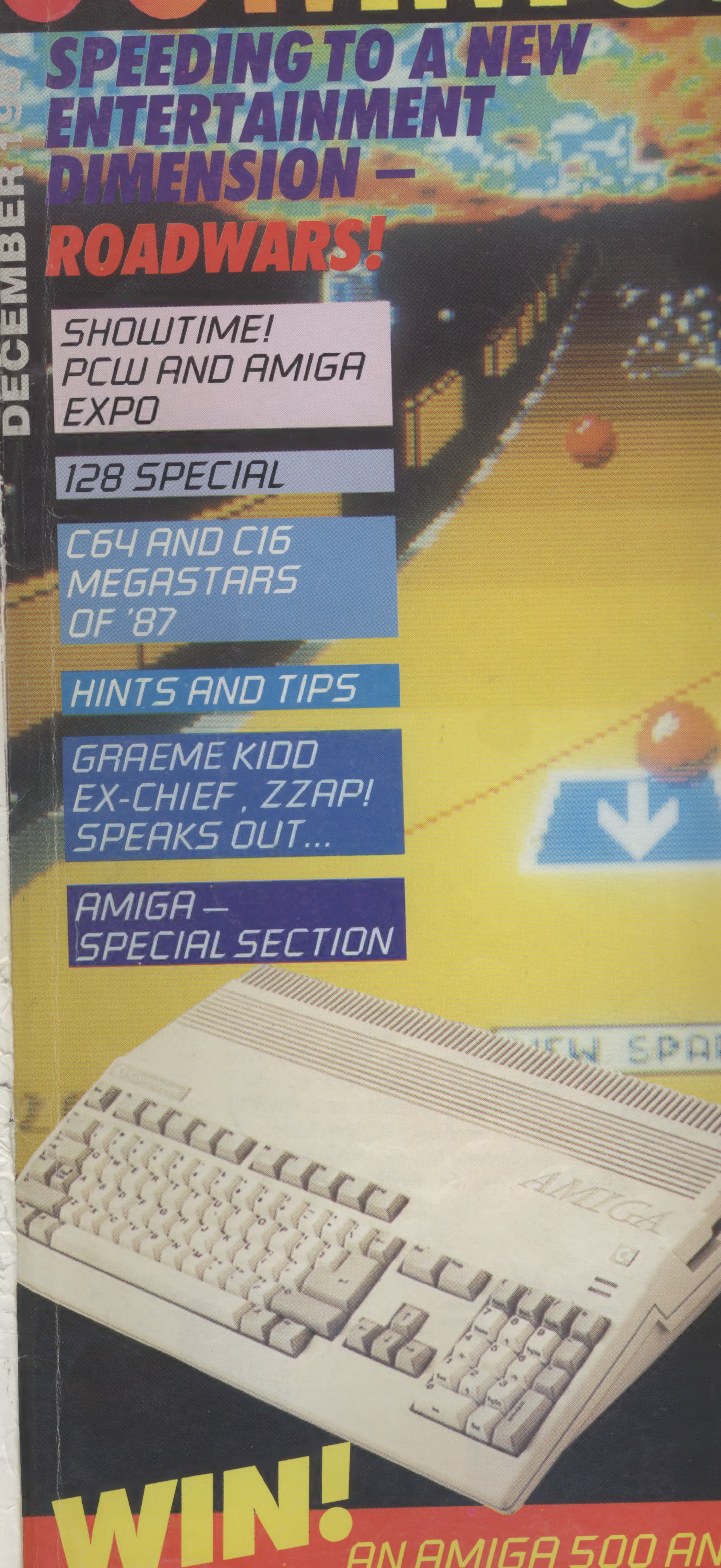

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